-and in Barbados

THE MOTOR-SHIP which drops anchor in the shadow of Mt. Hillaby down in coral-reefed Barbados is often welcomed by a Gargoyle Marine Oils Representative.

As at over 250 ports all over the World, representatives at Barbados are fully equipped to supply the correct Gargoyle Marine Oils for the scientific lubrication of motor-ships.

It is significant that leading Diesel Engine manufacturers highly recommend Gargoyle D. T. E. Oils for the lubrication of their engines.

It is significant, again, that most companies operating fleets of motorships on the seas today use Gargoyle D. T. E. Oils exclusively.

Gargoyle D. T. E. Oils minimize abrasion, corrosion and other troubles to which Diesel Engines are subject. This has often been proven by actual experience.

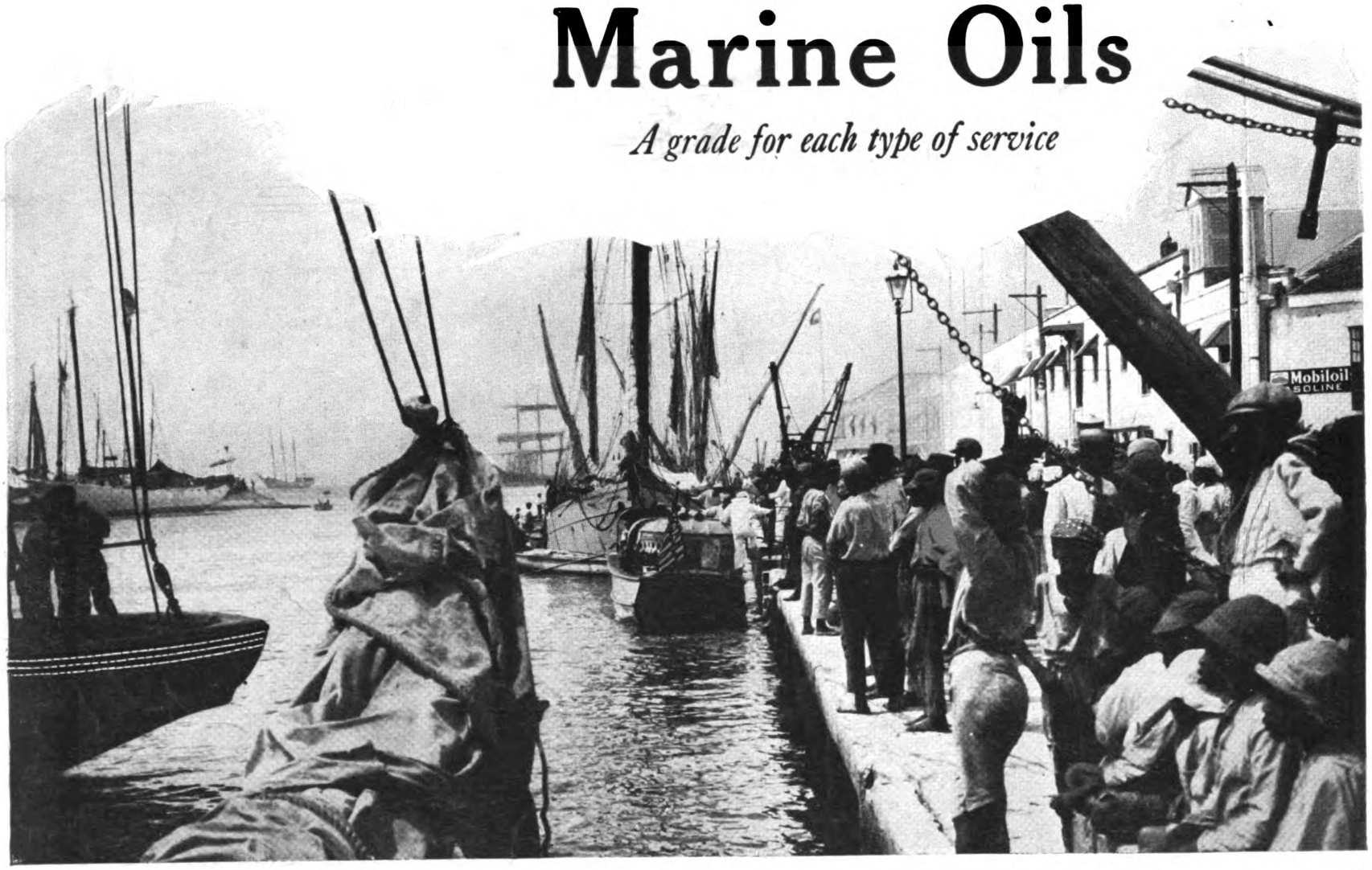
◈

Send for the booklet on Gargoyle D.T.E. Oils. It contains valuable information about the various uses of these oils as related to the lubrication of Diesel Type Engines.

GARGOYLE

Marine Oils

A grade for each type of service



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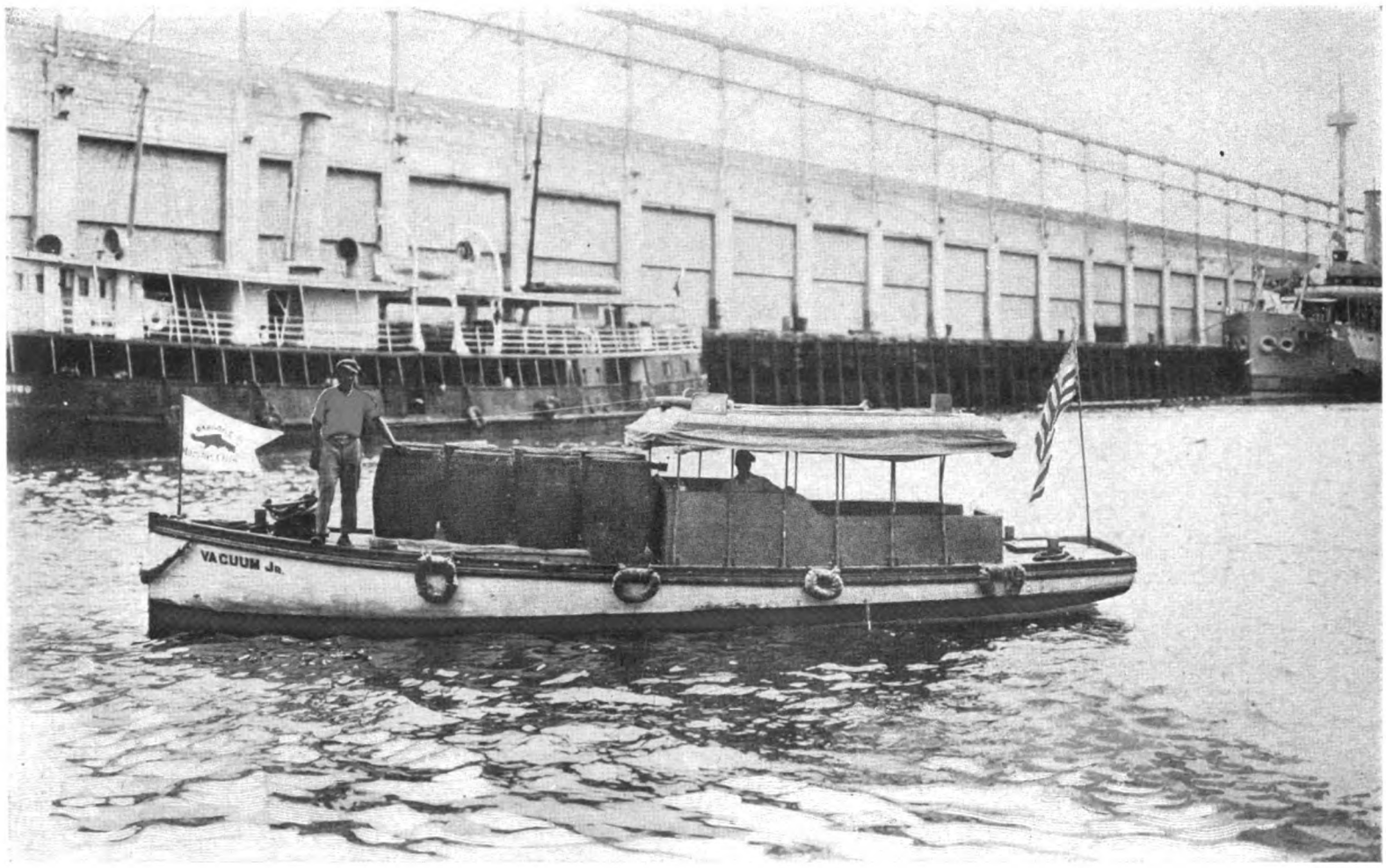

-and at the Canal

VESSELS entering the Panama Canal from either the Atlantic or Pacific are greeted by a broad-beamed motor craft flying the international flag of service—the Red Gargoyle.

If the ship requires Correct Lubrication, the speed with which it is supplied astonishes and pleases many a skipper.

That ship's officers appreciate the world-wide service offered by the Vacuum Oil Company we know from the many letters of appreciation we receive from them.

But only the capacity to produce results could give Gargoyle D. T. E. Oils their enviable reputation and the patronage of an overwhelming percentage of modern Motorship officers.

Gargoyle D. T. E. Oils resist emulsification. They separate readily from water and other impurities. They minimize abrasion, corrosion and other troubles to which Diesel Engines are subject.

GARGOYLE

Marine Oils

A grade for each type of service

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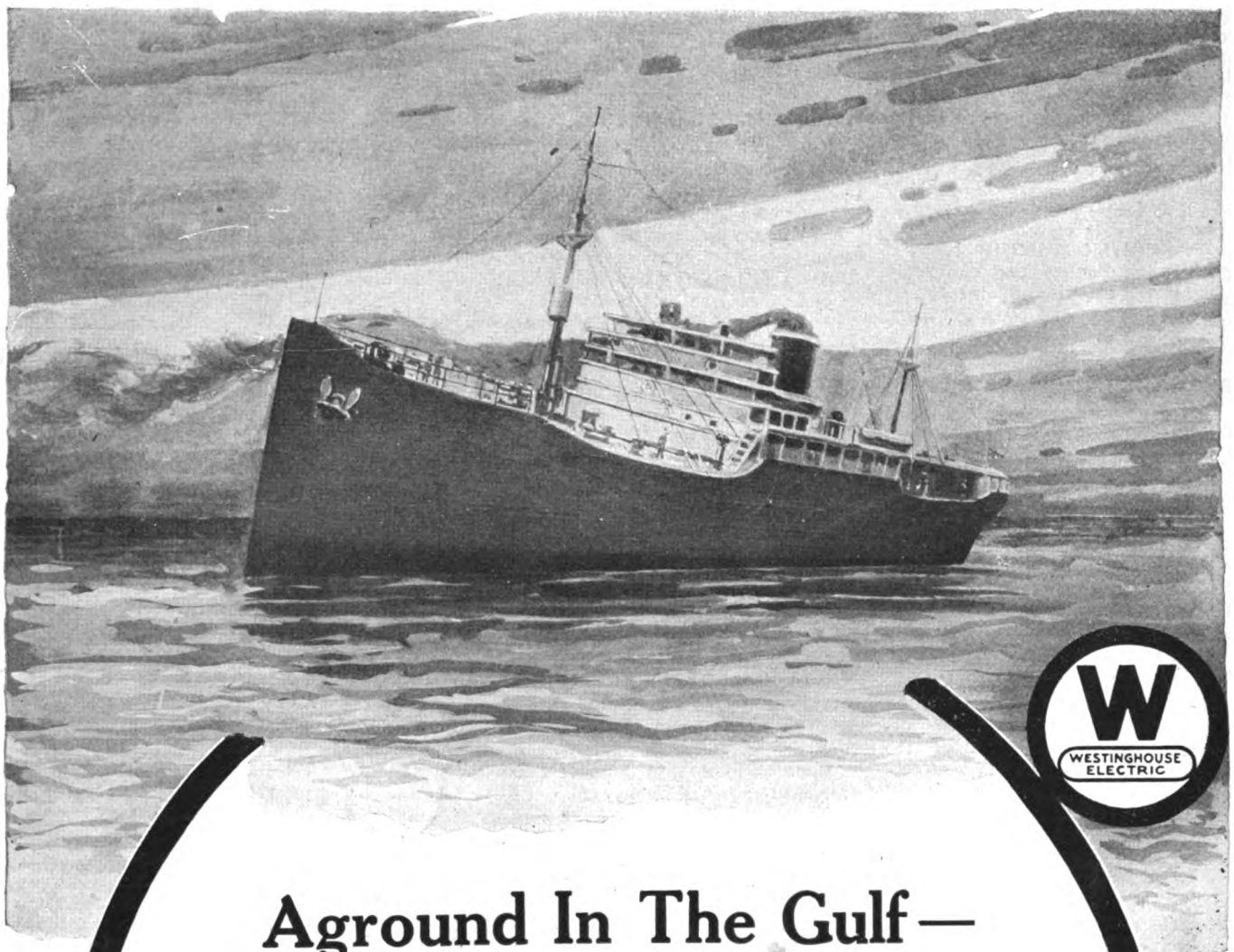

Aground In The Gulf—

Propelling Machinery Put to Severe Test

When two days out from New Orleans, the S.S. Noccalulu, equipped with Westinghouse Propulsion machinery, grounded heavily on a shoal in the Gulf.

In order to extricate her from this dangerous position, the main propulsion machinery was operated from full ahead to full astern repeatedly for two days, at the end of which time she was finally floated.

As a precautionary measure before proceeding further, her engines were shut down for inspection. Chief Engineer Twitchell states that in spite of the severe service imposed by operation when the ship was in her strained position on the shoal, and repeated reversals, the equipment was found in good condition.

The S.S. Noccalulu is equipped with 3,000 S.H.P. Westinghouse Geared Turbines. The turbines operate at 3,600 rpm. and the propeller 90 rpm.

Westinghouse Electric & Manufacturing Co.

East Pittsburgh, Pa. Washington, D. C.

Sales Offices in All Large American Cities

Special Pacific Coast Representatives
Hunt, Mirk & Company
San Francisco

Westinghouse

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–and in Zanzibar

ZANZIBAR has not been favored by the constant shifting of world trade routes. Yet the occasional motorship which calls there finds that Vacuum Oil Company service *serves*—in this corner of the world as in so many others.

The quality of D. T. E. Oils is so outstanding that Gargoyle Marine Oil distributors all over the world—over 250 in number—have an ever-active call for them. Ships' officers appreciate a service which enables them to buy oil when needed in any part of the globe.

Gargoyle D. T. E. Oils give unusual results on Diesel type engines. They minimize abrasion and corrosion. They resist emulsification. They separate readily from water and other impurities.

Cases are not rare of motorships which after several years still use the original charge of Gargoyle D.T.E. Oils with little "make-up" added.

Diesel type engine manufacturers recommend Gargoyle D. T. E. Oils. Companies operating principal motorship fleets use them.

Send for the booklet on Gargoyle D. T. E. Oils. It contains valuable information on the various uses of these oils as related to the lubrication of Diesel Type Engines.

GARGOYLE

Marine Oils

A grade for each type of service

VACUUM OIL COMPANY *Specialists in the manufacture of high-grade lubricants for every class of machinery. Obtainable everywhere in the World.* **NEW YORK, U.S.A.**

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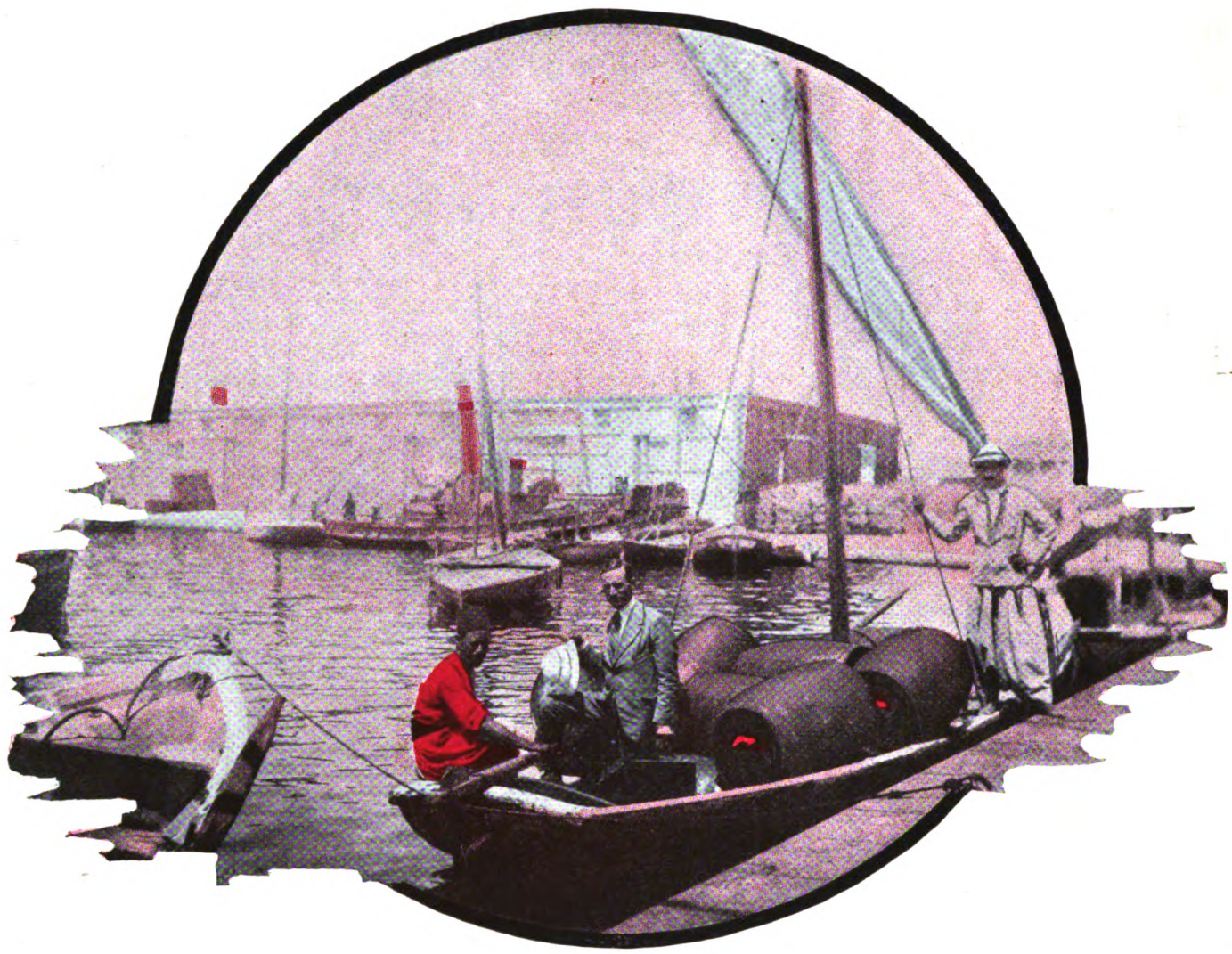

– and at Alexandria

ANOTHER link in the Vacuum Oil Company's world-wide chain of Oil Stations for motorships.

At your service in upward of 250 ports of the world, you will find your supply of Gargoyle D.T.E. oils waiting for you.

Many Companies operating fleets of motorships use Gargoyle D.T.E. oils exclusively.

Why?

Their correctness and uniformity are absolute.

On Diesel type engines uniformity is of the highest importance.

Uniformity is one of the reasons why the leading makers of Diesel engines definitely recommend Gargoyle D.T.E. Oils for their lubrication.

GARGOYLE

Marine Oils

A grade for each type of service

If you wish to know more about the various uses of Gargoyle D.T.E. Oils as relating to Diesel type engines, let us send you our "Gargoyle D.T.E." Booklet.

VACUUM OIL COMPANY

New York, U. S. A.

Specialists in the manufacture of high-grade lubricants for every class of machinery. Obtainable everywhere in the world.

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Wi

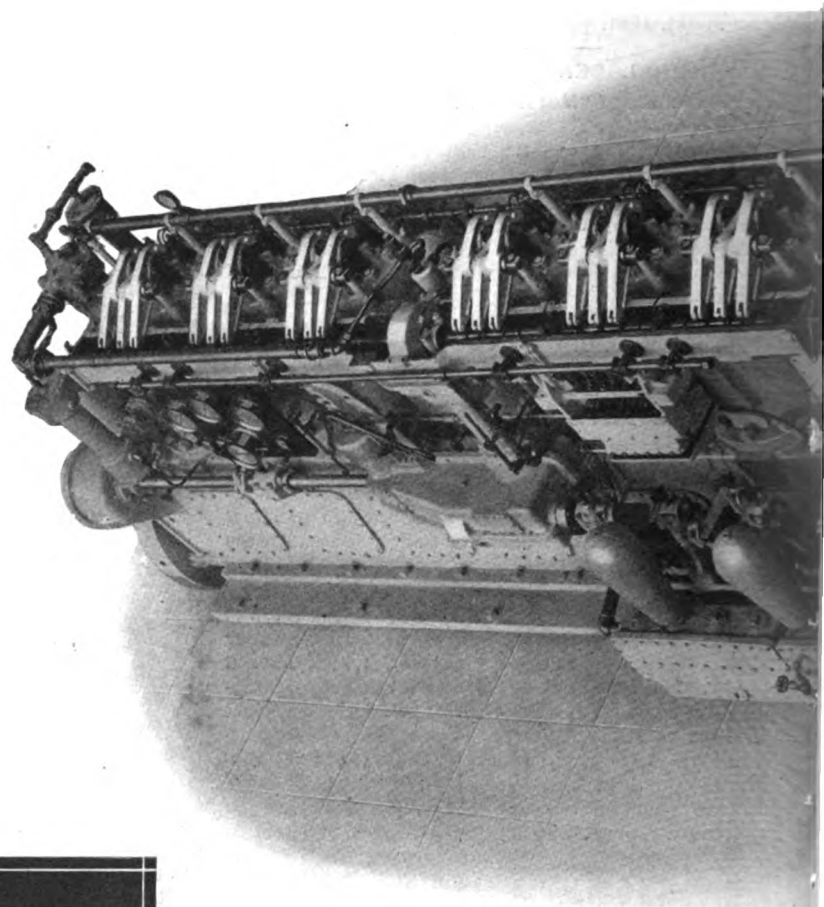
OIL DIESEL TYPE

WINTON OIL ENGINES FOR DIRECT DRIVE

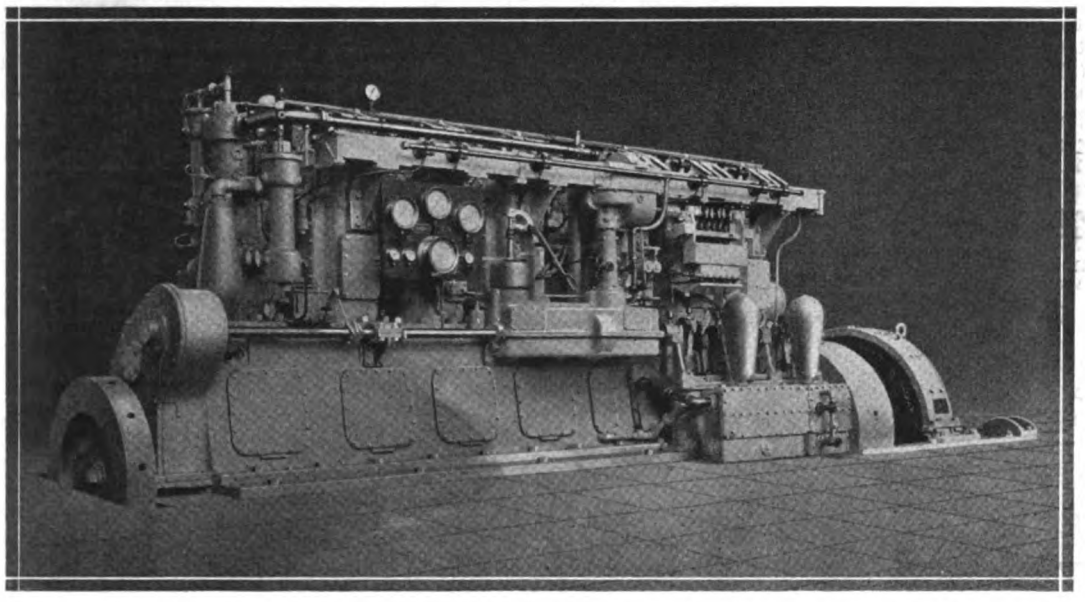
Model W-54 6-cylinder	125 H.P.
Model W-58 4-cylinder	150 H.P.
Model W-35 6-cylinder	225 H.P.
Model W-24 6-cylinder	300 H.P.
Model W-40 8-cylinder	450 H.P.

WINTON AIR COMPRESSORS

Model AC-3 90 cu. ft. free air
Model W-18 38 cu. ft. free air



AEROPLANE VIEW OF MODE



Electric Drive for all types of ships is
propulsion is discussed. It is rapidly for
Problem, offering as it does economical
plying additional cargo space and reducing

The Model W-86 Winton Electric Drive
the various Winton Oil Engine units. A
direct connected to a 225 K.W. D. C. Gener
for direct drive and for the operation of au

Write for further de
Units and also Winton

WINTON ENGINE WORKS,

New York—A. G. Griese, Inc., 120 Broadway
Washington, D. C.—R. L. Fryer, 817 Albee Bldg.
Seattle—H. W. Starrett,

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–and at Singapore

THEY say "The four corners of the world meet at Singapore."

Here motorships fill their needs for Gargoyle D. T. E. Oils as readily as back home or at any other port on the seven seas.

It would be hard to find a port worthy of the name where you cannot find a Gargoyle Marine Oils Station and the dependable Gargoyle D. T. E. Oils that are the Diesel's "meat and milk."

The outstanding way these oils meet the severe service conditions under which Diesels operate—the way they minimize abrasion and corrosion—are known and appreciated by motorship owners and engineers the world over.

To any one interested in more detailed information about Diesel engines and their operation, we will be glad to send our booklet "Gargoyle D. T. E. Oils."

GARGOYLE

Marine Oils

A grade for each type of service

VACUUM OIL COMPANY

New York, U. S. A.

Specialists in the manufacture of high-grade lubricants for every class of machinery. Obtainable everywhere in the world.

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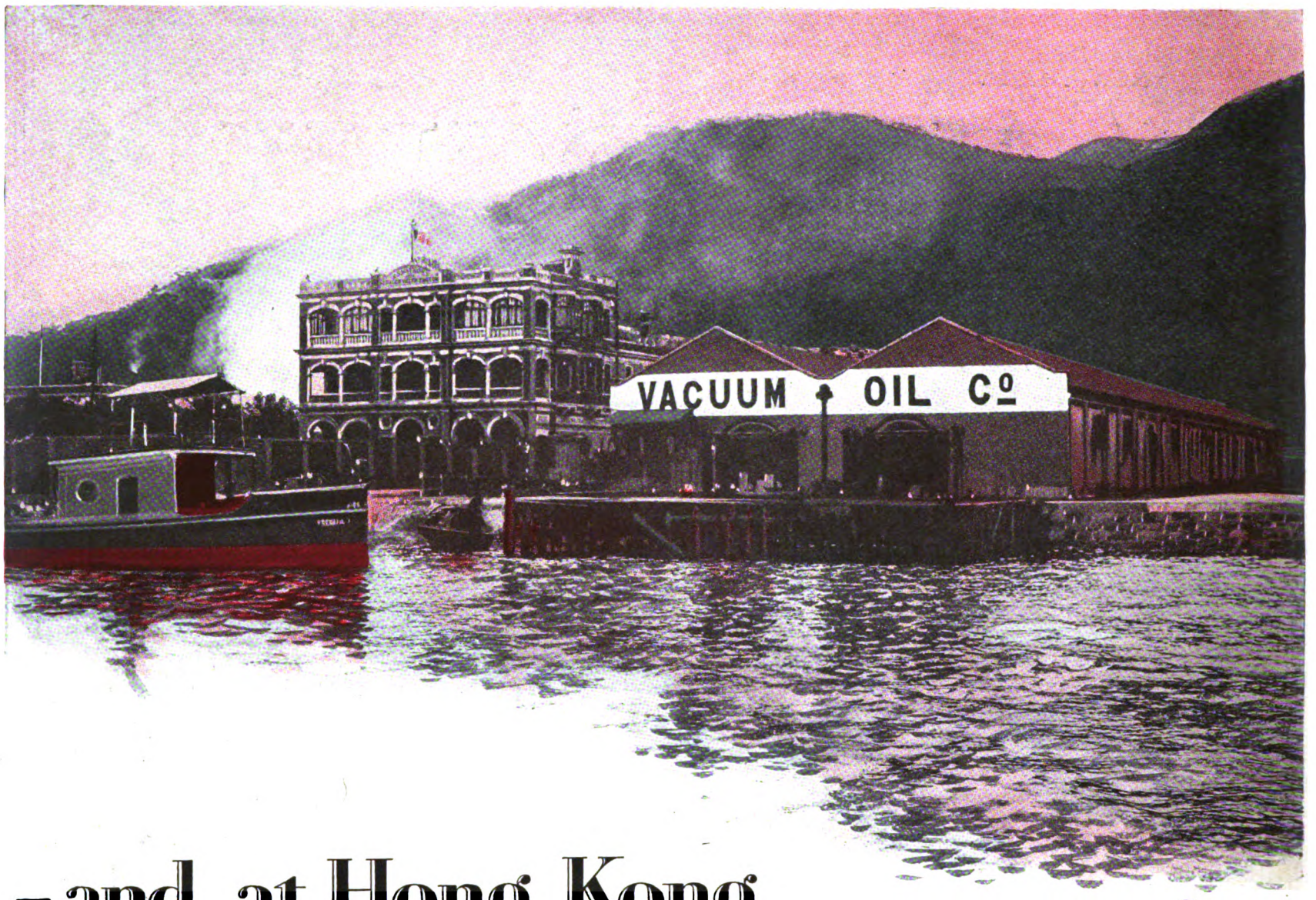

—and at Hong Kong

AT the Asiatic terminus for globe-encircling ships, as at 250 other ports of the world, barrels of high-grade lubricating oils bearing the familiar red Gargoyle, are waiting for motorships at Gargoyle stations.

Captains and Chief Engineers know that Gargoyle Marine Oils may be bought at these stations or may be ordered in advance at the home port. Deliveries will be ready on call at any time at any port.

Gargoyle D.T.E. Oils are manufactured especially to meet the lubricating requirements of Diesel type engines.

They are dependable, economical and furnish maximum assurance against breakdowns and repairs. They are in constant use by motorships the world over. If you operate a Diesel you will find interesting information in our Gargoyle D. T. E. Booklet, mailed on request.

GARGOYLE

Marine Oils

A grade for each type of service

VACUUM OIL COMPANY *Specialists in the manufacture of high-grade lubricants for every class of machinery. Obtainable everywhere in the world.* **NEW YORK, U.S.A.**

New York, U. S. A.

Specialists in the manufacture of high-grade lubricants for every class of machinery. Obtainable everywhere in the world.

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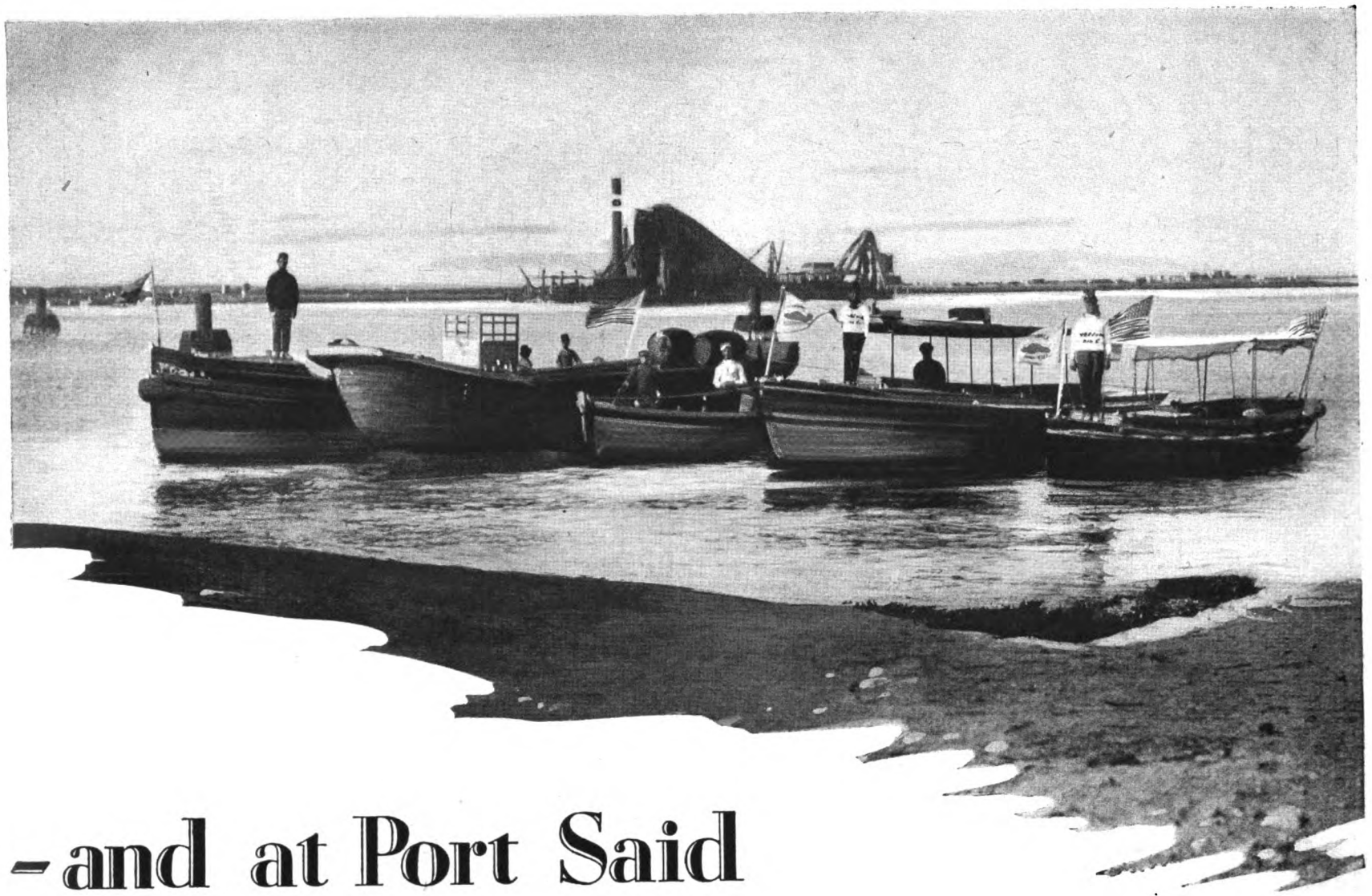

–and at Port Said

MOTORSHIPS stop here to replenish their supply of Gargoyle Marine Oils and to secure pilots for the Suez Canal.

As their stay is very brief a busy fleet of small boats, flying the Gargoyle flag, may be seen scooting around the harbor, supplying motorships with the correct grade of Gargoyle Marine Oils.

Motorships the world over are lubricated with Gargoyle D. T. E. Oils. These oils are of uniformly high quality. They separate quickly from water, filter readily, absorb and radiate heat from bearings, and will not corrode journals or bearings.

As motorship owners and operators know, Gargoyle D. T. E. Oils are thoroughly dependable and under continuous service will give maximum efficiency.

Important lubricating information in Booklet — "Gargoyle D. T. E. Oils" sent free on request.

Marine Oils

A grade for each type of service

VACUUM OIL COMPANY *Specialists in the manufacture of high-grade lubricants for every class of machinery. Obtainable everywhere in the world.* **NEW YORK, U.S.A.**

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--and at Aberdeen

DEPENDABLE and enduring as the granite walls of Aberdeen, is Vacuum Oil service in this "silver city by the sea."

Here, as in more than 250 other ports, motorships may find waiting for them their supplies of Gargoyle D.T.E. Oils contracted for at their home port.

Marine engineers the world over recognize the outstanding merits of these high-grade oils.

Gargoyle D.T.E. Oils are manufactured specifically to—

1.—Flow freely through oil passages, and spread readily over surfaces requiring lubrication;
2.—Maintain a lubricating film on the walls of the power cylinders in the presence of high temperatures;
3.—Furnish lubrication with a minimum of residue or carbon deposit;
4.—Maintain the effective sealing of the piston rings against blow-by on power and compression strokes;
5.—Maintain a lubricating film on bearings under high pressure operating conditions;
6.—Separate readily from water and impurities, retaining their service value after long use and repeated filtering.

We shall be glad to consult with you on your lubricating problems.

GARGOYLE

Marine Oils

A grade for each type of service

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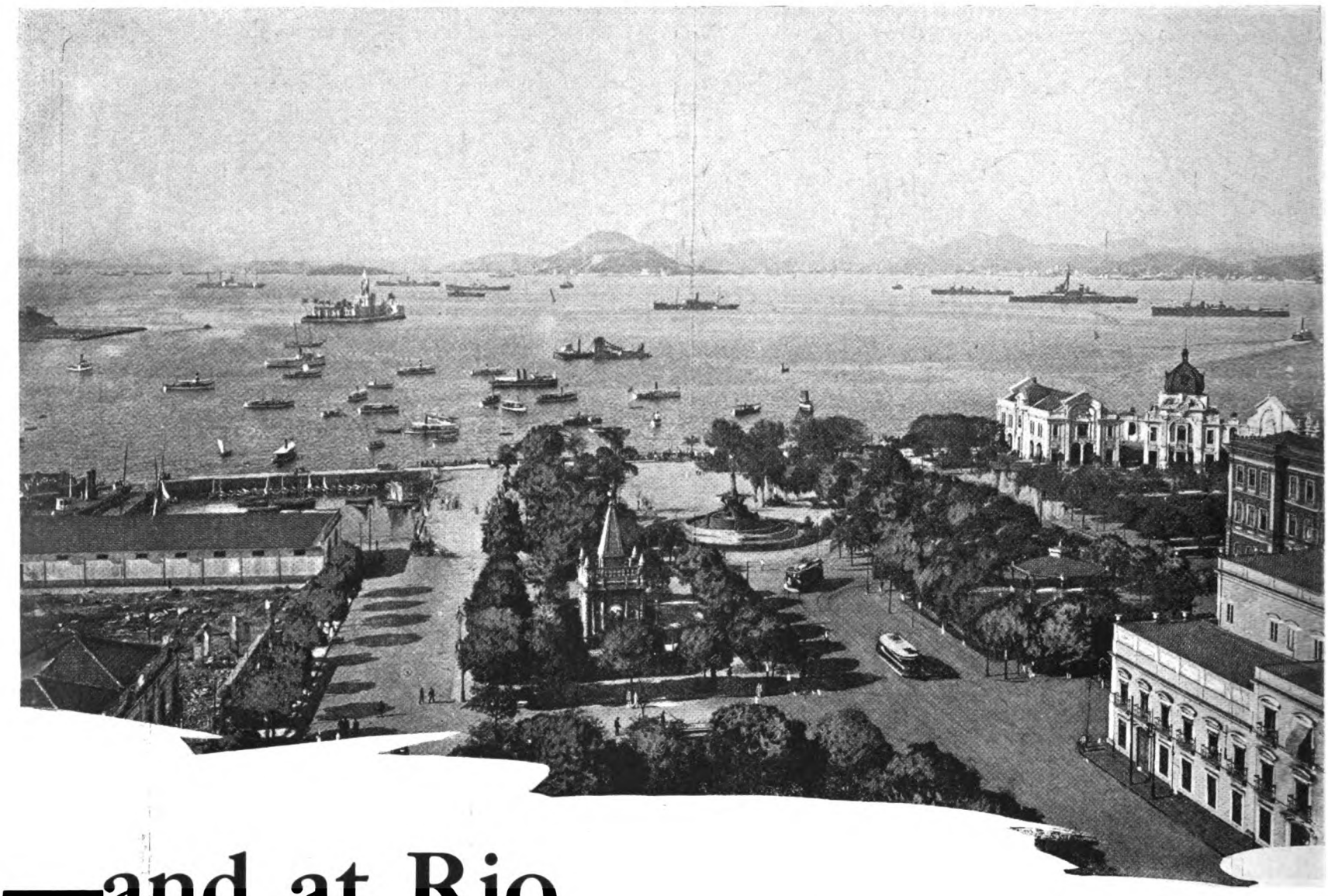

—and at Rio

TRAVELERS seeing this splendid harbor for the first time rate it as one of the most beautiful in the world.

Captains and engineers of motorships are more interested in practical matters—such as putting on board supplies of Gargoyle D.T.E. Oils for the return voyage. The Oils will be ready on call.

Vacuum Oil representatives at Rio, as in 250 other ports, are prepared to recommend and supply the correct Gargoyle D.T.E. Oils for all marine uses, including Diesel lubrication.

Motorships the world over use these high-grade oils which minimize abrasion, corrosion and other operating troubles peculiar to Diesel type engines as found on motorships.

We shall be glad to consult with you on your lubricating problems.

GARGOYLE

Marine Oils

A grade for each type of service

VACUUM OIL COMPANY *Specialists in the manufacture of high-grade lubricants for every class of machinery. Obtainable everywhere in the world.* **NEW YORK, U.S.A.**

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—and at Colombo

THIS picture shows one of the countless local methods of delivering Gargoyle Lubricating Oils.

Motorships the world over use Gargoyle D. T. E. Oils and the quality of these high-grade oils is the same in every one of the 250 leading ports of the world.

If you should ask a motorship Master or Engineer to put in one word his commendation of Gargoyle D. T. E. Oils, that word would probably be "dependable."

The well-known merits of these oils including their resistance to emulsification, their ability to separate readily from water and other impurities and their reliability in constant use under trying conditions—have made them the choice of a vast number of motorship owners.

We shall be glad to consult with you on your lubricating problems.

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—and in Melbourne

IN this "city of the seven hills," as in every port of the seven seas, the red Gargoyle, "the symbol of Correct Lubrication," may be found.

In every corner of the world mariners may count on securing the correct oils for the scientific lubrication of Diesel type engines on motorships, and for all other types of marine engines.

Gargoyle Marine Oils may be bought at every port, or may be contracted for in advance at the home port, for delivery when and where needed.

To anyone interested in the subject of Marine Lubrication, we will be glad to send regularly, without cost, our monthly publication, "The Compass." Each issue contains much valuable, practical information.

The readers of "The Compass" run into the thousands, and we will be pleased, upon request to our New York Office, to add your name to the list.

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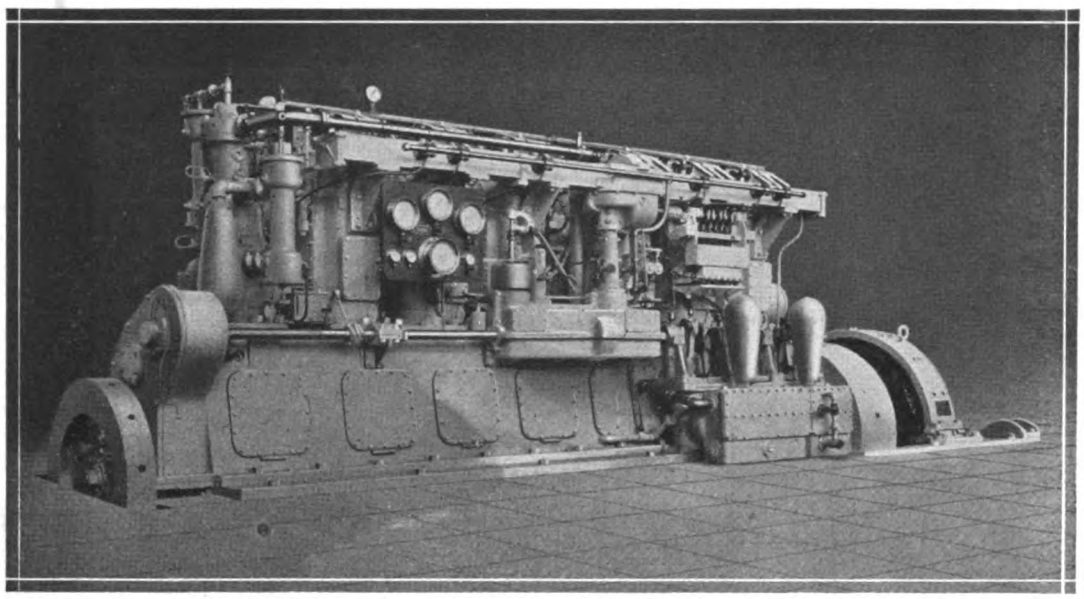
Wi

OIL DIESEL TYPE



"GUINIVERE'S" POWER PLANT

"Guinivere" is the latest addition to the fleet of highly successful Diesel-Electric Driven Ships to be powered with Winton Oil Engines.

"Guinivere" is owned by Mr. Edgar Palmer, was designed by A. Loring Swasey and was built by Geo. Lawley and Son Corp. 195′ x 32′ x 15′. Speed, 11½ knots. Cruising radius, 11,000 miles.

Power plant consists of a pair of six-cylinder 350 H.P. Winton Oil Engines direct connected to 225 K.W. Westinghouse generators, which in turn operate a 550 H.P. electric driving motor in the stern.

WINTON ENGINE WORKS,

New York—**A. G. Griese, Inc., 30 Church Street**

Washington, D. C.—**R. L. Fryer, 817 Albee Bldg.**

Seattle—**H. W. Starrett,**

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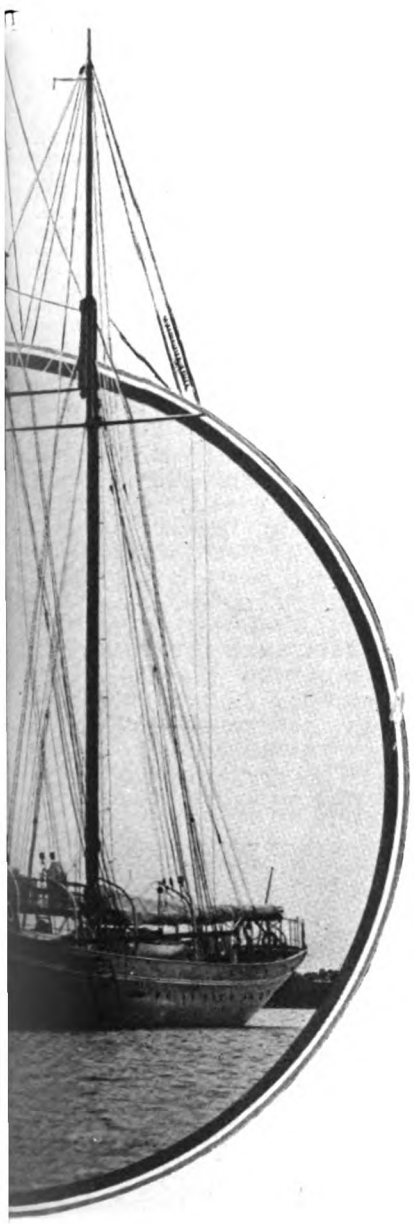
NGINES



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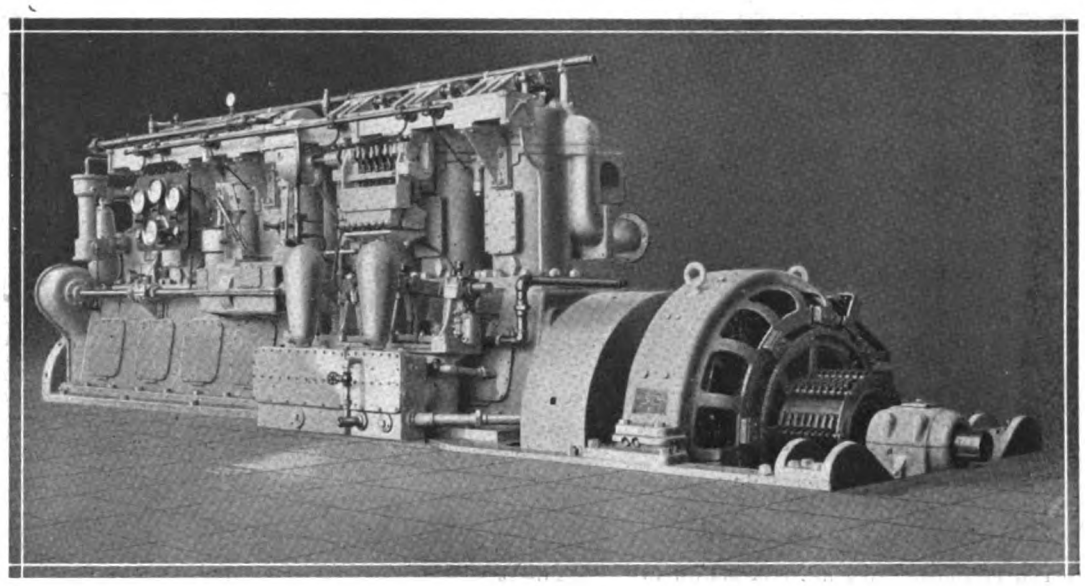

"GUINIVERE'S" POWER PLANT

WINTON ELECTRIC DRIVE UNITS

Model 67 3-cylinder..... 45 K.W.
Model 43 4-cylinder..... 60 K.W.
Model 59 6-cylinder..... 80 K.W.
Model W-66 6-cylinder.....140 K.W.
Model W-86 6-cylinder.....225 K.W.
Model W-87 8-cylinder.....340 K.W.

WINTON OIL ENGINES FOR DIRECT DRIVE

Model W-54 6-cylinder.....125 H.P.
Model W-58 4-cylinder.....150 H.P.
Model W-35 6-cylinder.....225 H.P.
Model W-24 6-cylinder.....300 H.P.
Model W-40 8-cylinder.....450 H.P.

WINTON AIR COMPRESSORS

Model AC-3 90 cu. ft. free air
Model W-18 38 cu. ft. free air

CLEVELAND, OHIO, U. S. A.

Sunset Engine Co.

San Francisco—F. G. Bryant, 593 Market Street
Jacksonville—D. J. Carrison & Co.

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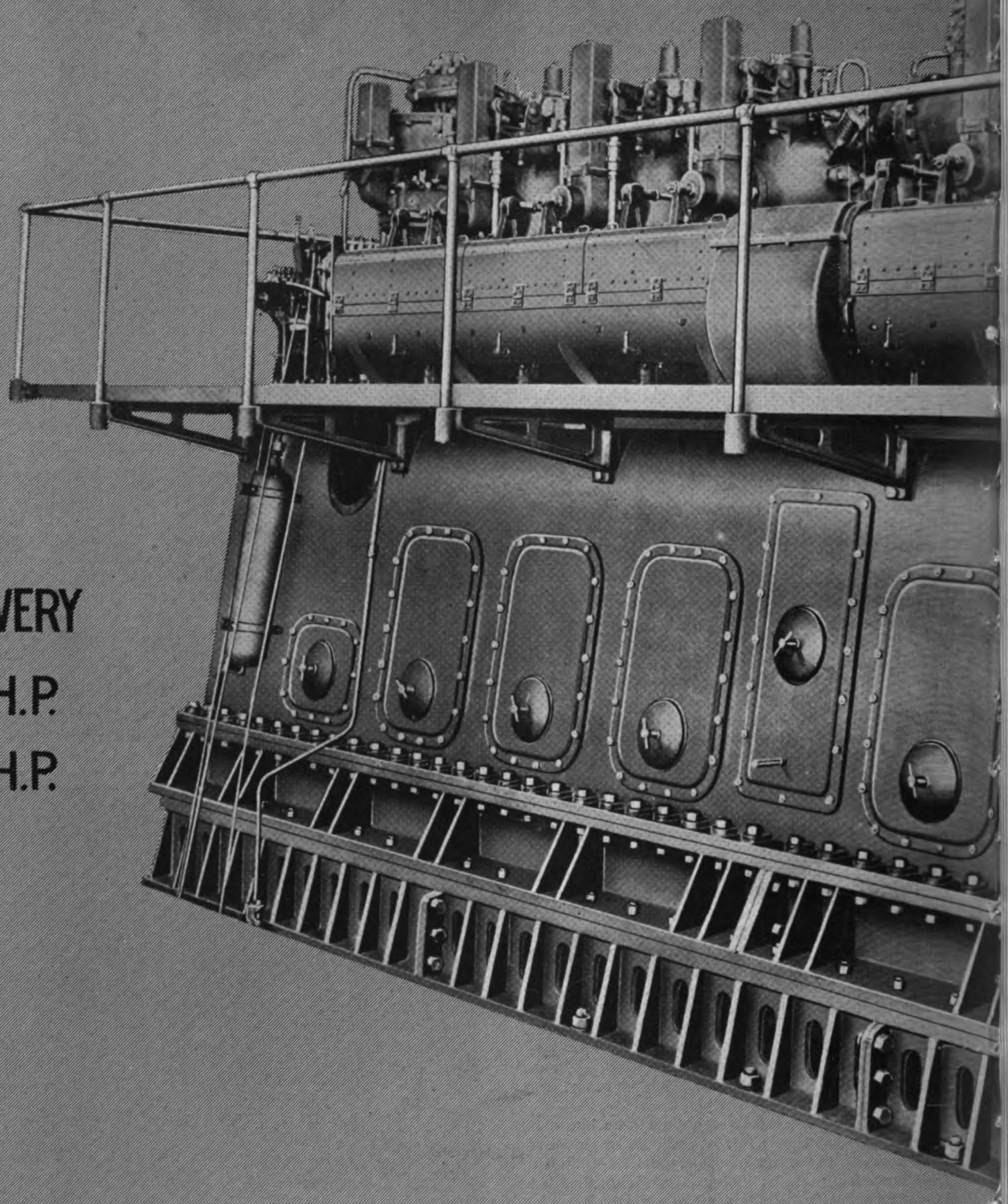
NELSECO DIESEL ENGIN



SIZES
FOR EARLY DELIVERY
120 H.P., 180 H.P.
240 H.P., 360 H.P.
480 H.P.

600-750 B.H.P., 225 R.P.M., 4 cycle, 6 cylinders
HEAVY-DUTY MARINE OR STATIONARY DIESEL ENGINE

NELSECO

New London Ship
Groton

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—and in Holland

NOT only the well-known ports of Amsterdam and Rotterdam, but throughout the length of Holland's 1,500 miles of canals, towns far inland have a maritime appearance and maritime advantages. In such towns "every home is a little port."

Thus on every water course may be found motor-driven craft of different types whose lubricating needs are supplied by Gargoyle Marine Oils.

Holland is not peculiar in this respect. No matter in what corner of the globe you make port, you will find these high-grade oils in constant demand and constant use.

Almost universally, motorship Owners, Masters and Engineers endorse Gargoyle D.T.E. Oils because they resist emulsification and have the ability to separate readily from water and other impurities, retaining their service value after long use.

GARGOYLE

In a word, because they have been found to be dependable for the trying conditions under which marine machinery must operate.

Marine Oils

A grade for each type of service

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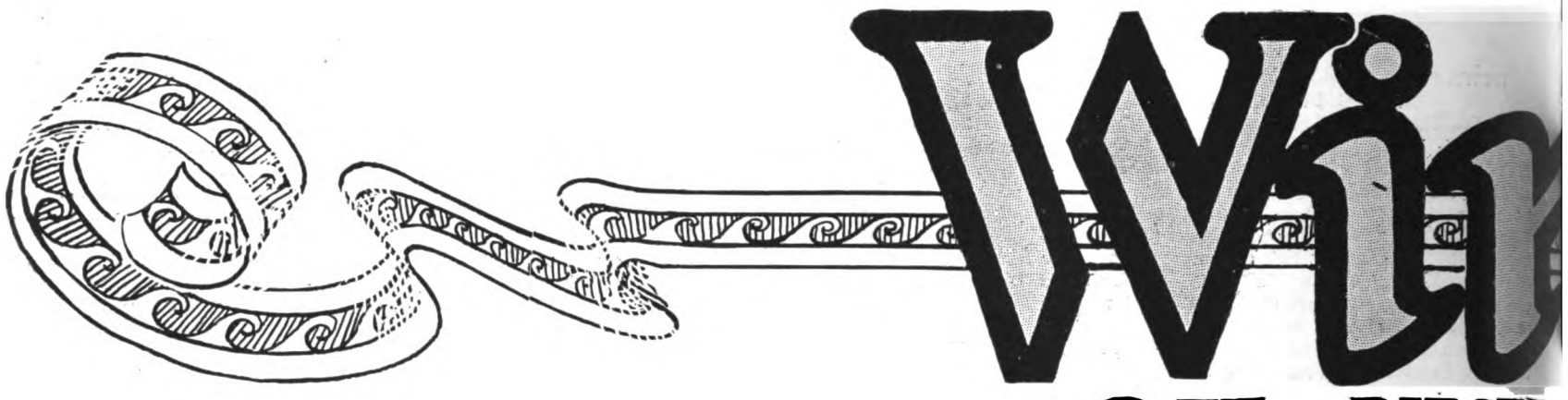

Wi

OIL DIESEL TYPE

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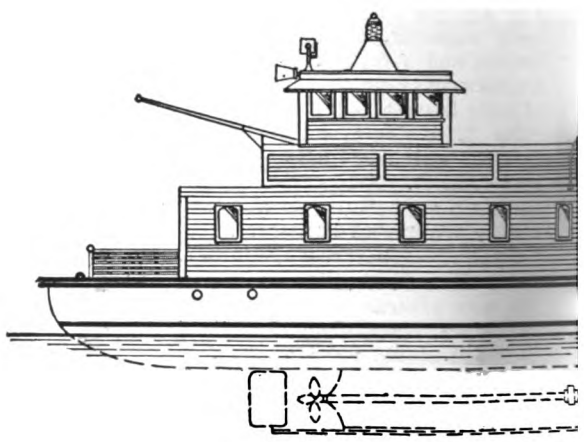
WINTON AIR COMPRESSORS

Model AC-3 90 cu. ft. free air
Model W-18 38 cu. ft. free air

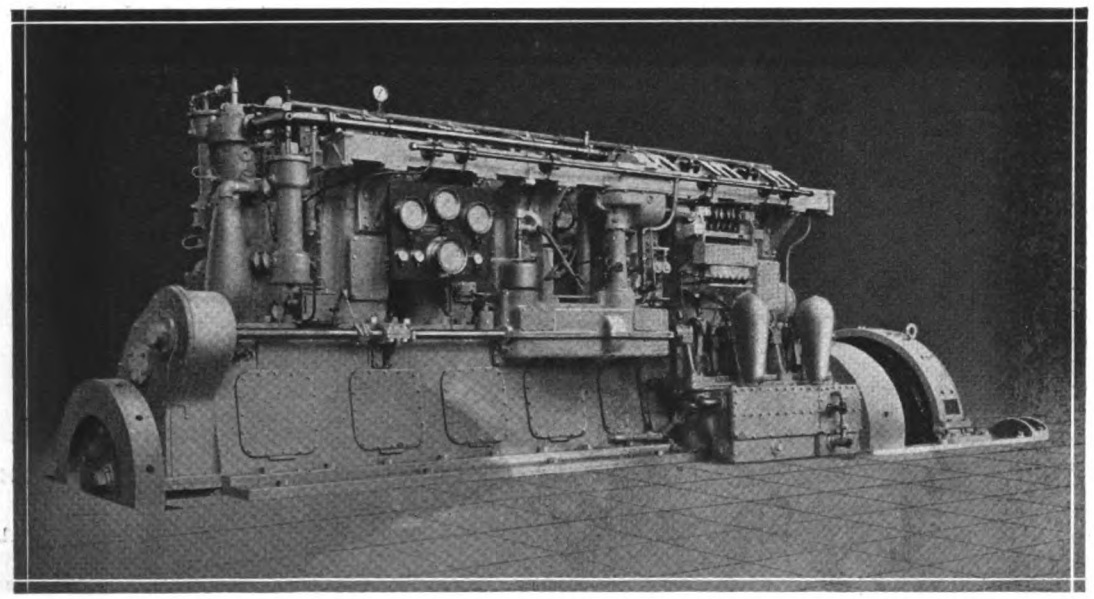


A DIESEL-ELECTR

The Ferry-Vessel "Poughkeepsie" n
Pacific Company's Yard, Brooklyn,
Ferry Company is 140 ft. over guar
guards. Designs by C. V. S. Wycko

Power plant consists of a pair of si
rect connected to 90 K. W. Westingl
H.P. Westinghouse electric motors
for 32 automobiles, in addition to

WINTON DIESEL-ELECTRI



Write for further d
Units and also Winto

WINTON ENGINE WORKS,

New York—A. G. Griese, Inc., 30 Church Street
Washington, D. C.—R. L. Fryer, 817 Albee Bldg. *Seattle*—H. W. Starrett,

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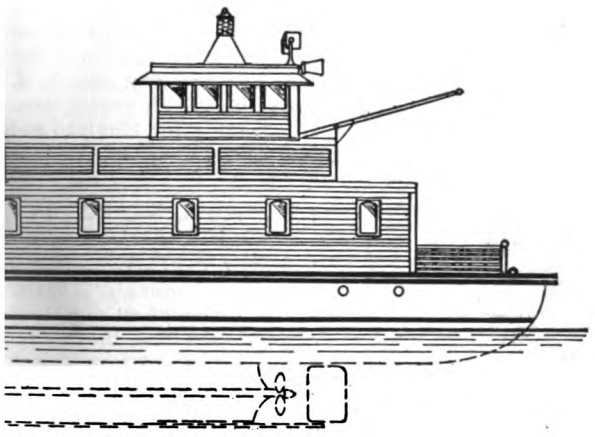
ton
NGINES



E FERRY BOAT

nstruction at the Atlantic-Gulf & he Poughkeepsie and Highland 6 in. overall, 52 ft. breadth over

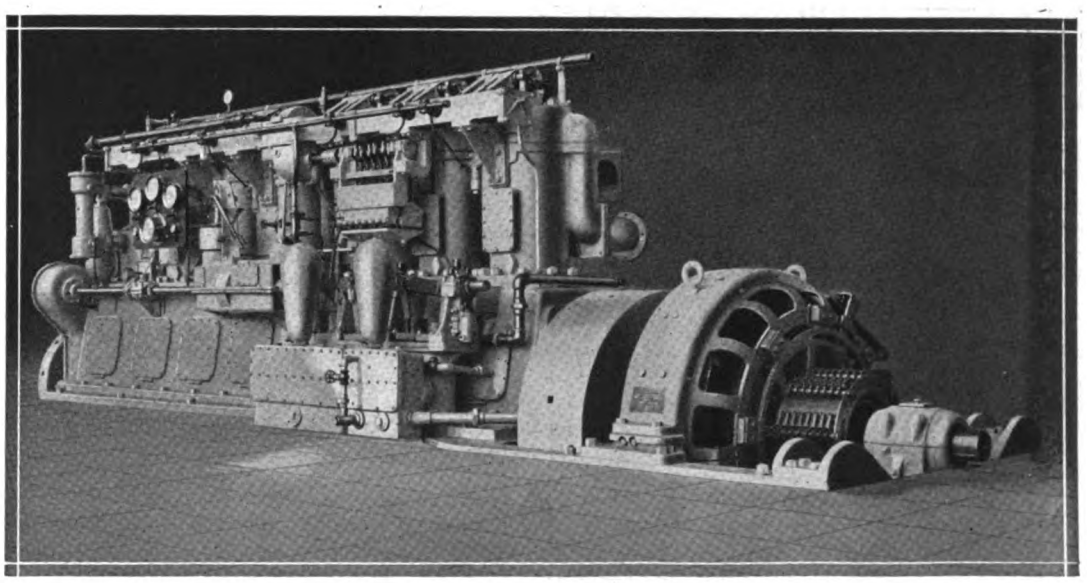
50 H.P. Winton Oil Engines di- ıtors, which in turn operate two 100 e-ended propeller shaft. Capacity ɔin facilities.

IS *THE* MODERN POWER

ɔn Electric Drive
xiliary Equipment

WINTON ELECTRIC DRIVE UNITS

Model 67 3-cylinder	45 K.W.
Model 43 4-cylinder	60 K.W.
Model 59 6-cylinder	80 K.W.
Model W-66 6-cylinder	140 K.W.
Model W-86 6-cylinder	225 K.W.
Model W-87 8-cylinder	340 K.W.



CLEVELAND, OHIO, U. S. A.

Sunset Engine Co.

***San Francisco*—F. G. Bryant, 593 Market Street**
***Jacksonville*—D. J. Carrison & Co.**

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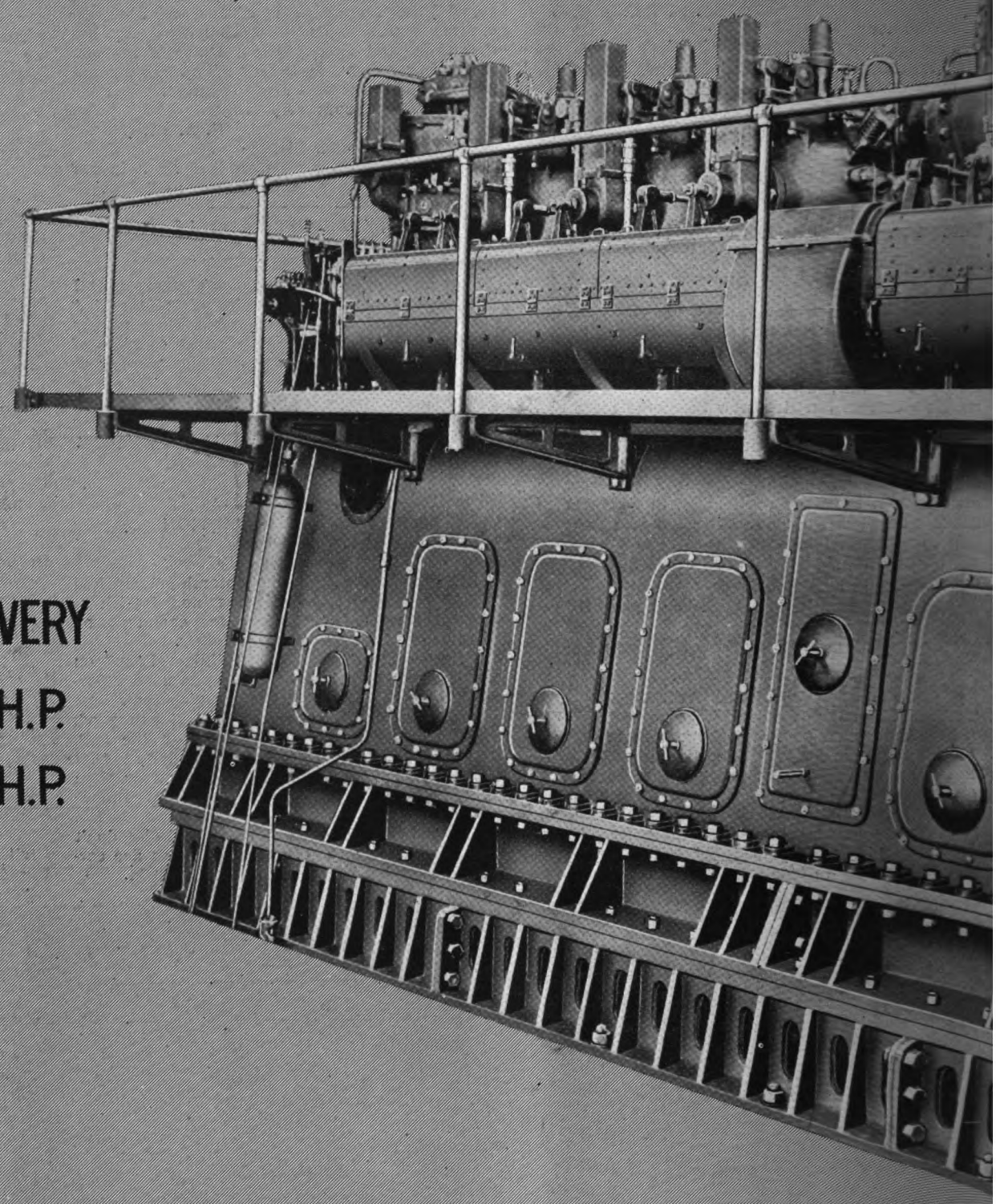
NELSECO DIESEL ENGI



SIZES
FOR EARLY DELIVERY
120 H.P., 180 H.P.
240 H.P., 360 H.P.
480 H.P.

600-750 B.H.P., 225 R.P.M., 4 cycle, 6 cylinde

HEAVY-DUTY MARINE OR STATIONARY DIESEL ENGI

NELSECO

New London Sh
Groto

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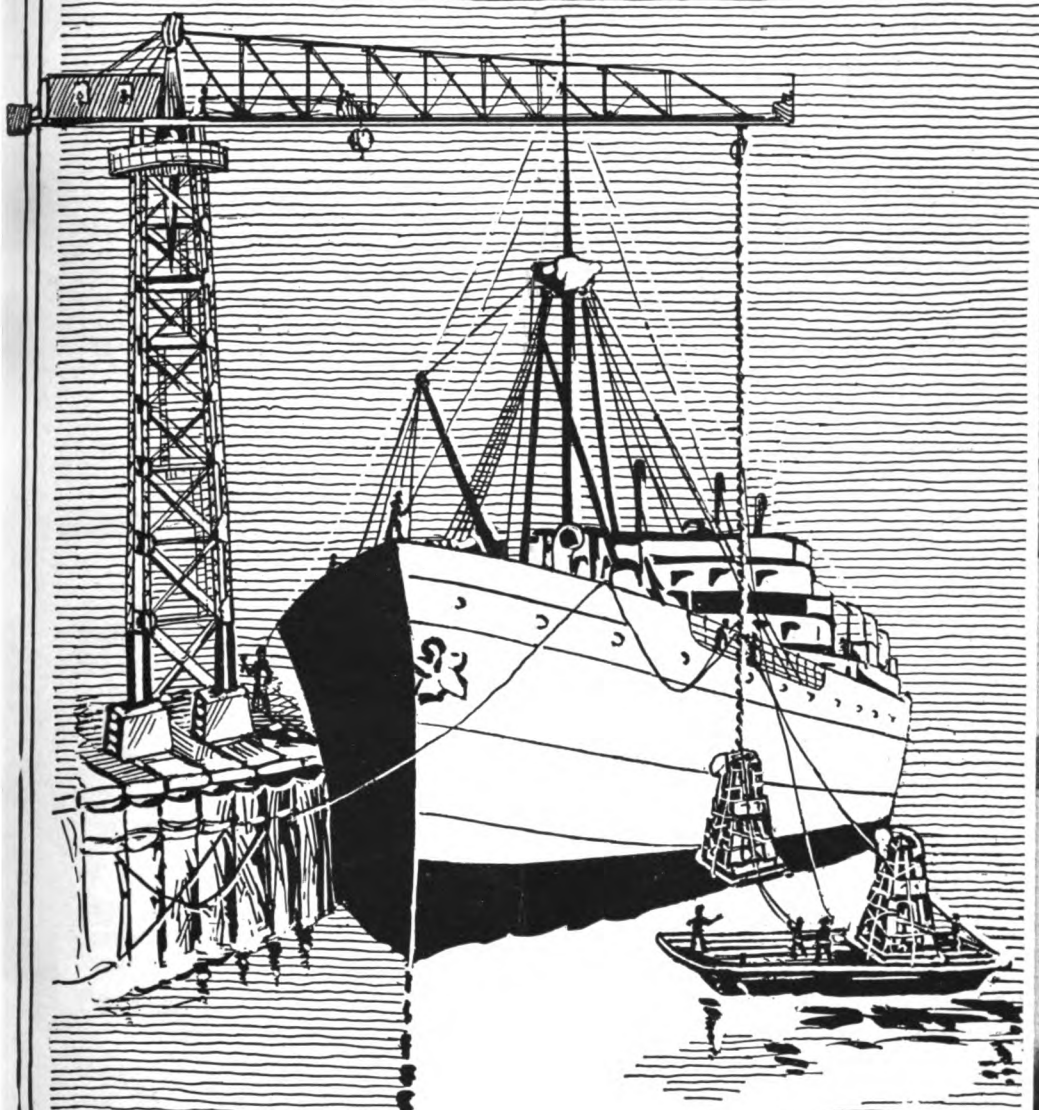
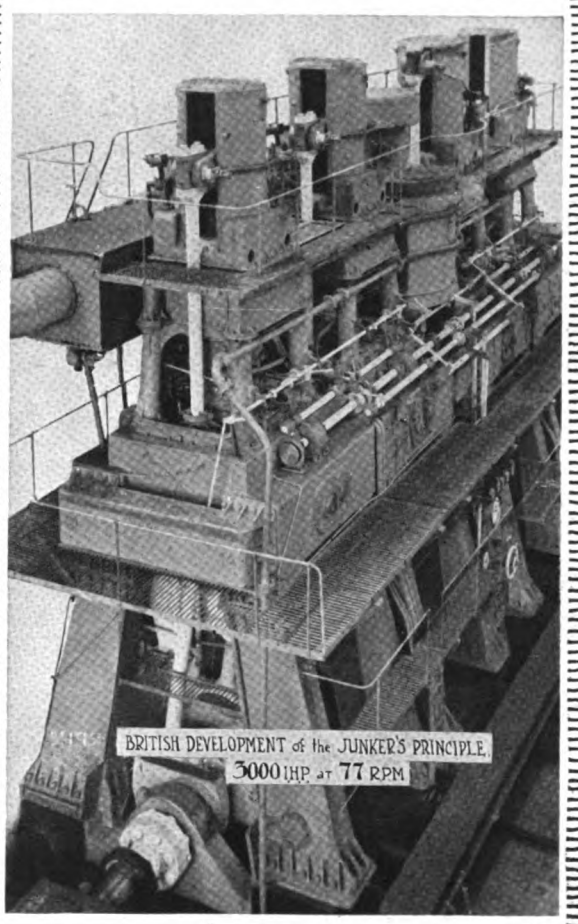
OPPOSED-PISTON OIL-ENGINES

JUNKER SYSTEM





for Merchant Ships

Applications for American Shop Rights Should Be Addressed to

THE OPPOSED-PISTON OIL-ENGINE COMPANY, Inc.

511 Fifth Avenue, New York, N. Y.

Owners of the American rights of the Junkers Two-Cycle Opposed-Piston Diesel-type Marine and Stationary Oil-Engine under United States patents, Nos. 891,078, 1,077,718, 1,102,590, 1,117,497, 1,117,498, 1,127,772, 1,162,173, 1,125,113, 1,186,205, 1,207,799, 1,231,901 *and others. Licenses have already been granted to eleven companies in England, France, Russia, Germany and the U. S. A.*

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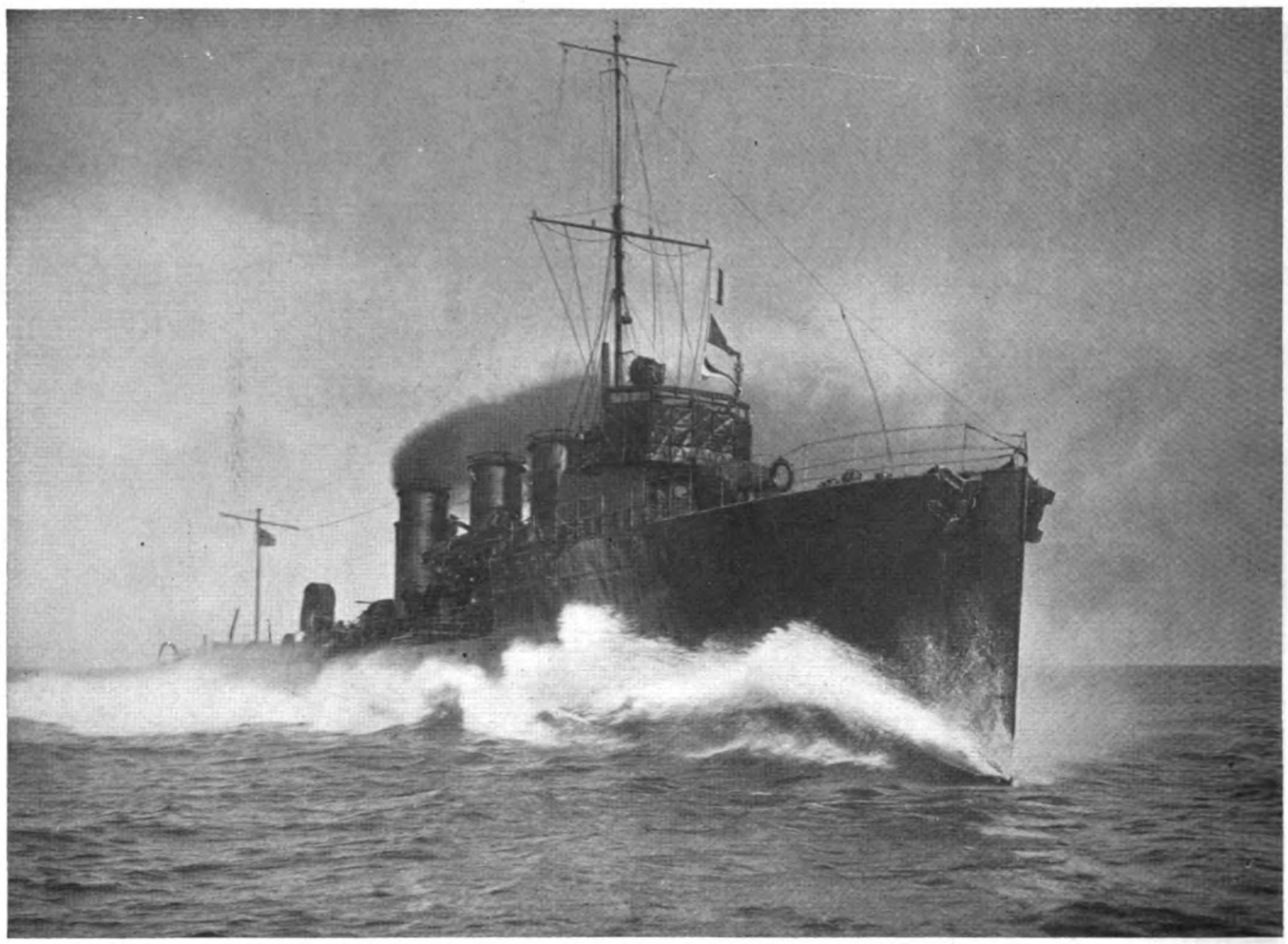
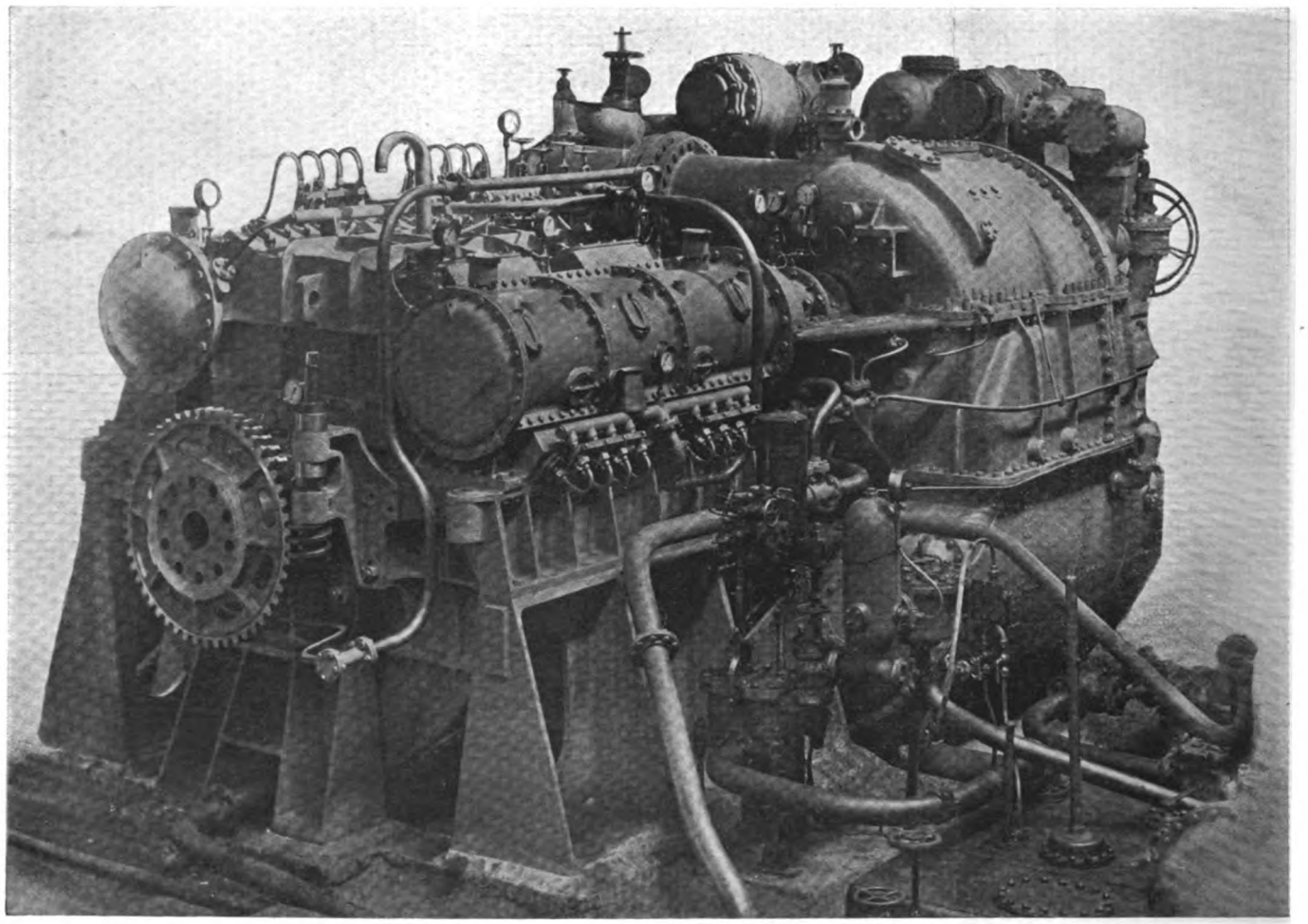
WILLIAM DOXFORD & SONS, LIMITED



TORPEDO BOAT DESTROYERS *34 KNOTS*



GEARED TURBINES *27,000 H. P.*

1914-1919

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DOXFORD

Opposed Piston Two-Stroke

MARINE OIL ENGINE

SOLID INJECTION

PERFECT COMBUSTION WITH CRUDE OILS

Patents Granted

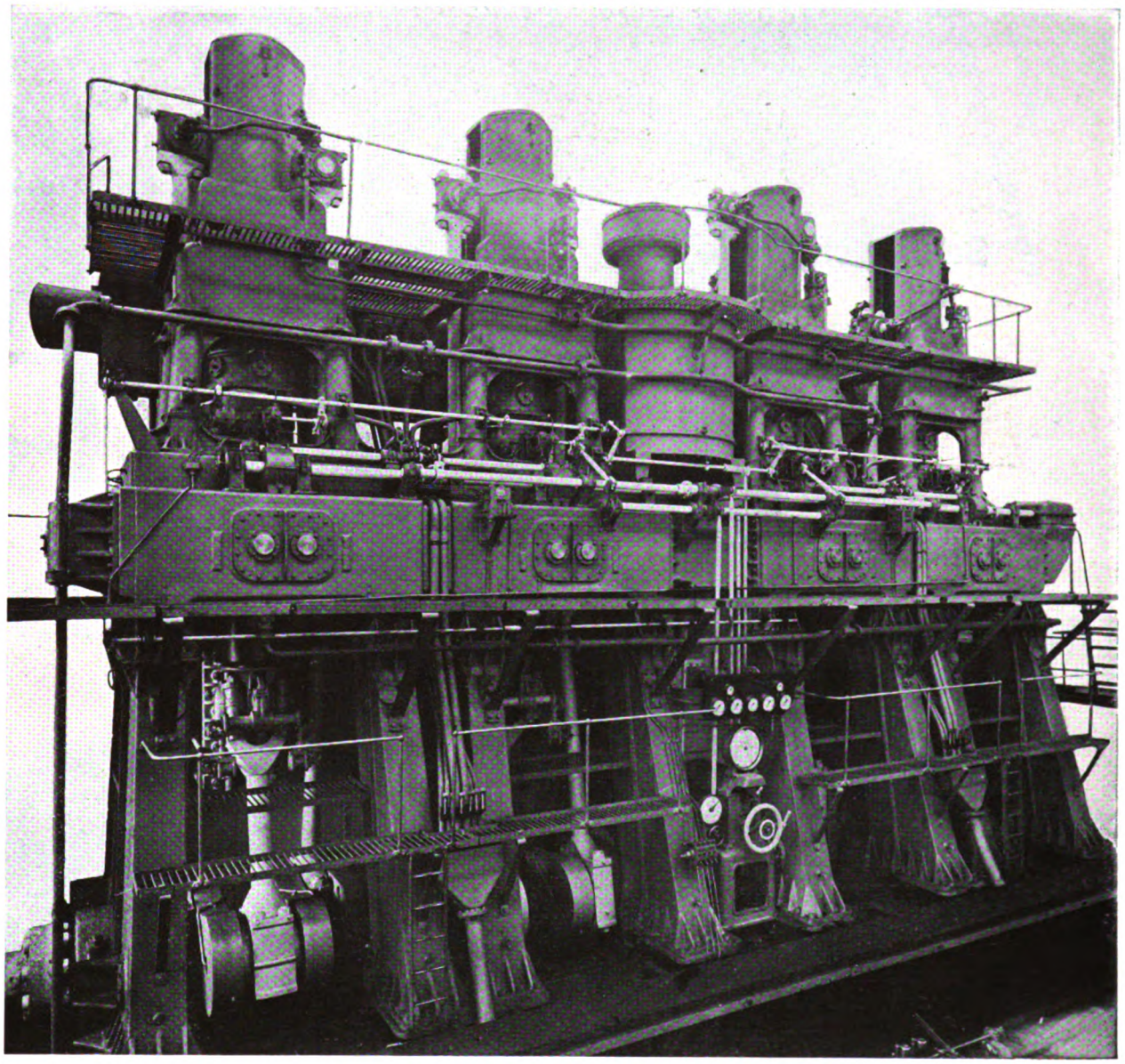
3,000 h. p. Four - Cylinder Single - Screw Installations

22¾ in. Bore, 77 Revolutions, 12 Knot Trial

In course of construction for British and Foreign Owners

Vessels 9,300 tons on 25½ draught

10½ Knot voyage on 9 tons consumption



WILLIAM DOXFORD & SONS, Ltd.

SHIPBUILDERS, ENGINEERS AND GOVERNMENT CONTRACTORS

Tel. Address "Doxford Sunderland"

SUNDERLAND

Tel. Nos. 412, 413, 414, 1141

1920-1921

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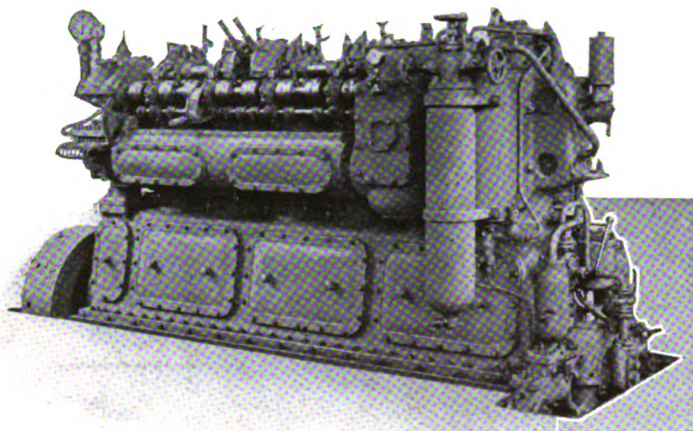
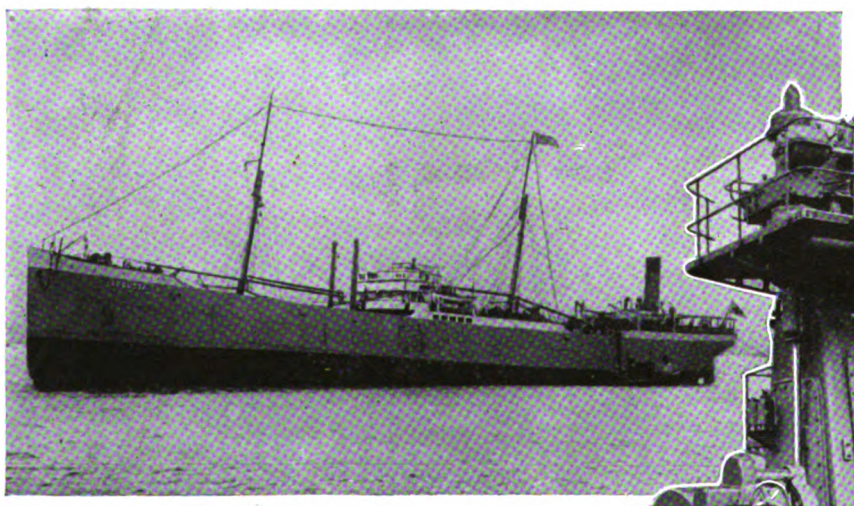
TWO-CYCLE DIESEL MARINE ENGINES



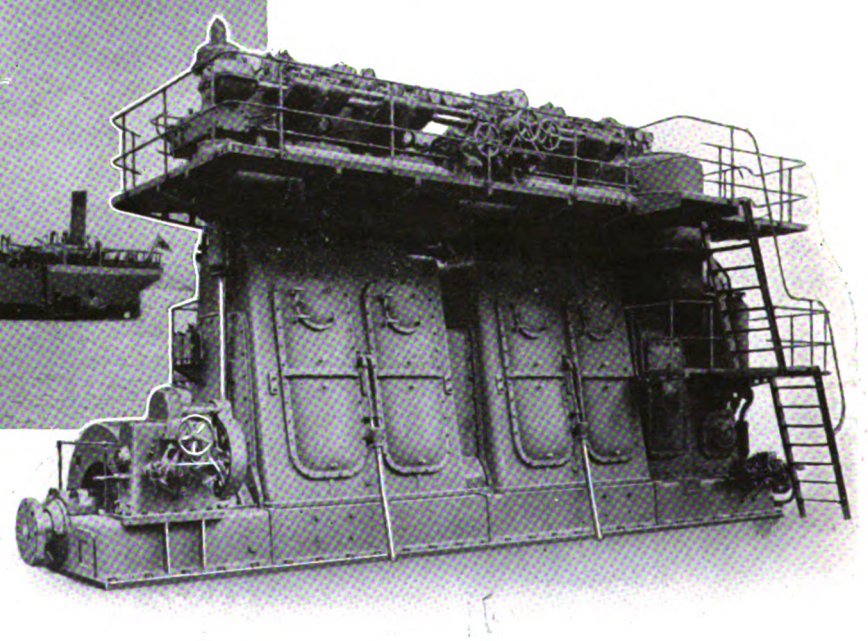
Smaller and medium-sized low-speed types
from 100—1000 HP for sailing ships, coasting and river service, medium-sized cargo-boats and passenger-ships, tugs, gun-boats, and yachts.

Sailing ship "Po"

SULZER



Cargoboat "Augusta"



Large low-speed types
from 1000 to over 6000 HP per unit for ships with one, two or more propellers, for ocean going vessels such as cargo boats, tankers, liners, etc.

SULZER FRÈRES
WINTERTHUR, SWITZERLAND

BUSCH-SULZER BROS.-
DIESEL ENGINE CO., ST. LOUIS, MO.

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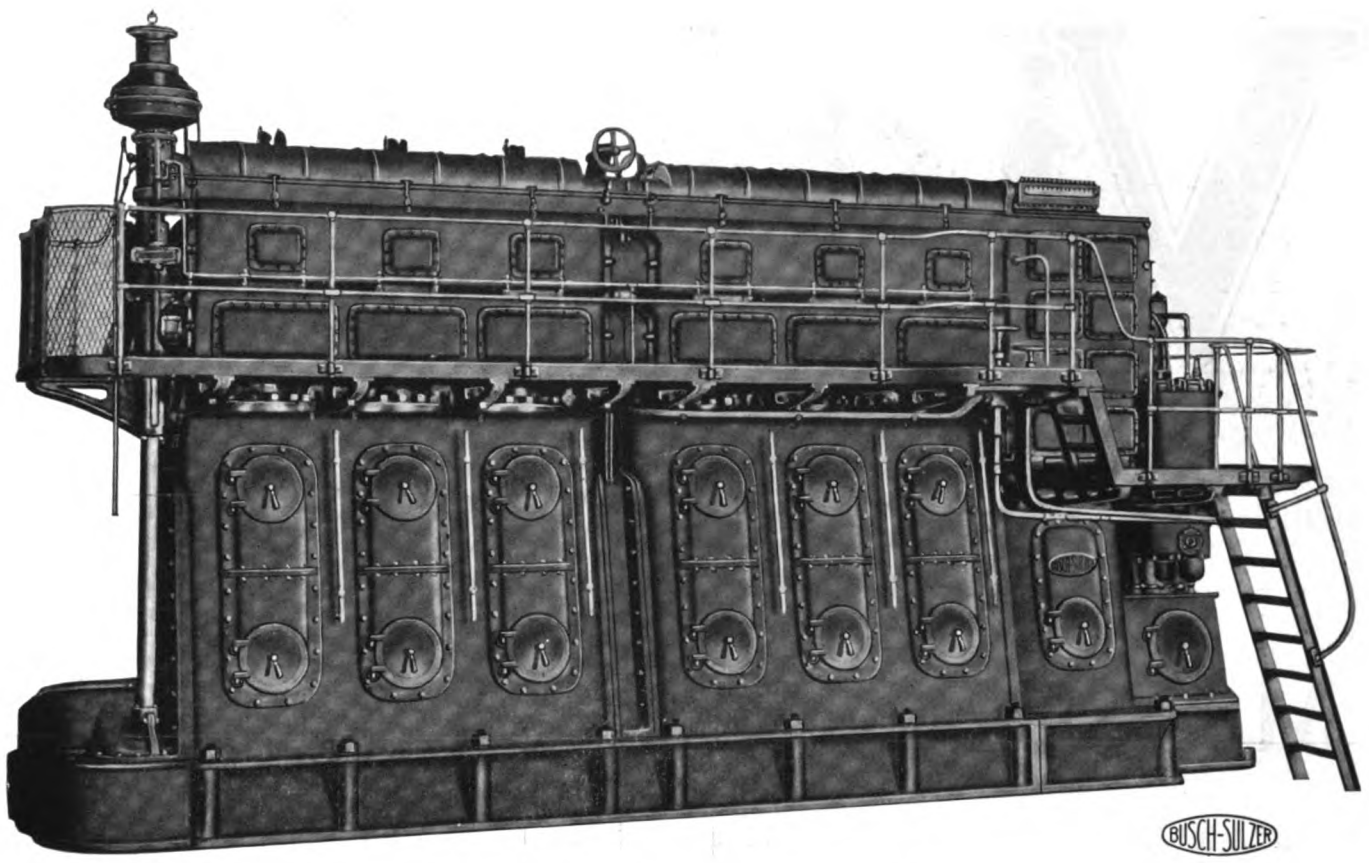

6 Cylinder Type—1 Working Valve per Cylinder Head

For
Diesel Electric
Per Pair
1000 B.H.P. to 8000 B.H.P.

BUSCH-SULZER

For
Single & Twin Screw
Per Engine
650 S.H.P. to 3750 S.H.P.

TWO CYCLE DIESEL MARINE ENGINES

23 Years of Diesel Manufacturing Insures:

Established Design
Proper Materials
and Workmanship

BUSCH-SULZER BROS.-DIESEL ENGINE CO.
ST. LOUIS, MO.

EASTERN SALES OFFICE
60 BROADWAY, NEW YORK

WESTERN SALES OFFICE
RIALTO BLDG., SAN FRANCISCO

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Vickers Limited

SOLID-INJECTION MARINE OIL-ENGINES.

REASONS

VICKERS' Commercial Marine Oil-Engines embody the ***accumulated sea experience*** of 12 years' manufacture of large-powered Marine Oil-Engines totalling 500,000 shaft horse-power. Merchant Ship-owners by specifying Vickers' Oil Engines will avoid the many troubles inseparable from Engines produced by Firms virtually serving their apprenticeship in the Marine Oil-Engine Trade.

VICKERS have unparalleled experience of Marine Oil-Engines of all types, powers and ratings, and offer the ***four-stroke type*** as most suitable to mercantile-marine conditions for the powers at present contemplated.

VICKERS' Engine is of ***normal construction,*** no practical advantage being gained by departing from the well-tried vertical direct-acting type, so easily understood and overhauled.

VICKERS' Engines have ***no injection-air compressor,*** Vickers being the originators and patentees of this type. This reduces the consumption, makes the engine simpler and easier to handle, and enables lower cylinder-pressures to be used.

VICKERS are experts in light-weight engine construction, but for commercial use they offer an Engine of a ***weight necessary for the conditions.***

VICKERS believe in conservative pressures and speeds for Mercantile Engines, and their ratings are moderate and can be ***guaranteed for continuous running.***

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Head Offices:

Vickers House,
Broadway
London, S.W. 1

New York Office:

2550 Woolworth Building
233 Broadway

Works:

Barrow-in-Furness.

M.V. "NARRAGANSETT"
(10,050 tons d.w.)
Anglo-American Oil Co., Ltd.

RESULTS

Average of EIGHTEEN Atlantic crossings, many in very bad weather

Total Distance	- -	73,600 miles.
Mean Speed	- -	10.34 knots.
Daily Engine-Fuel	-	**9.83** tons.

Vickers
Limited

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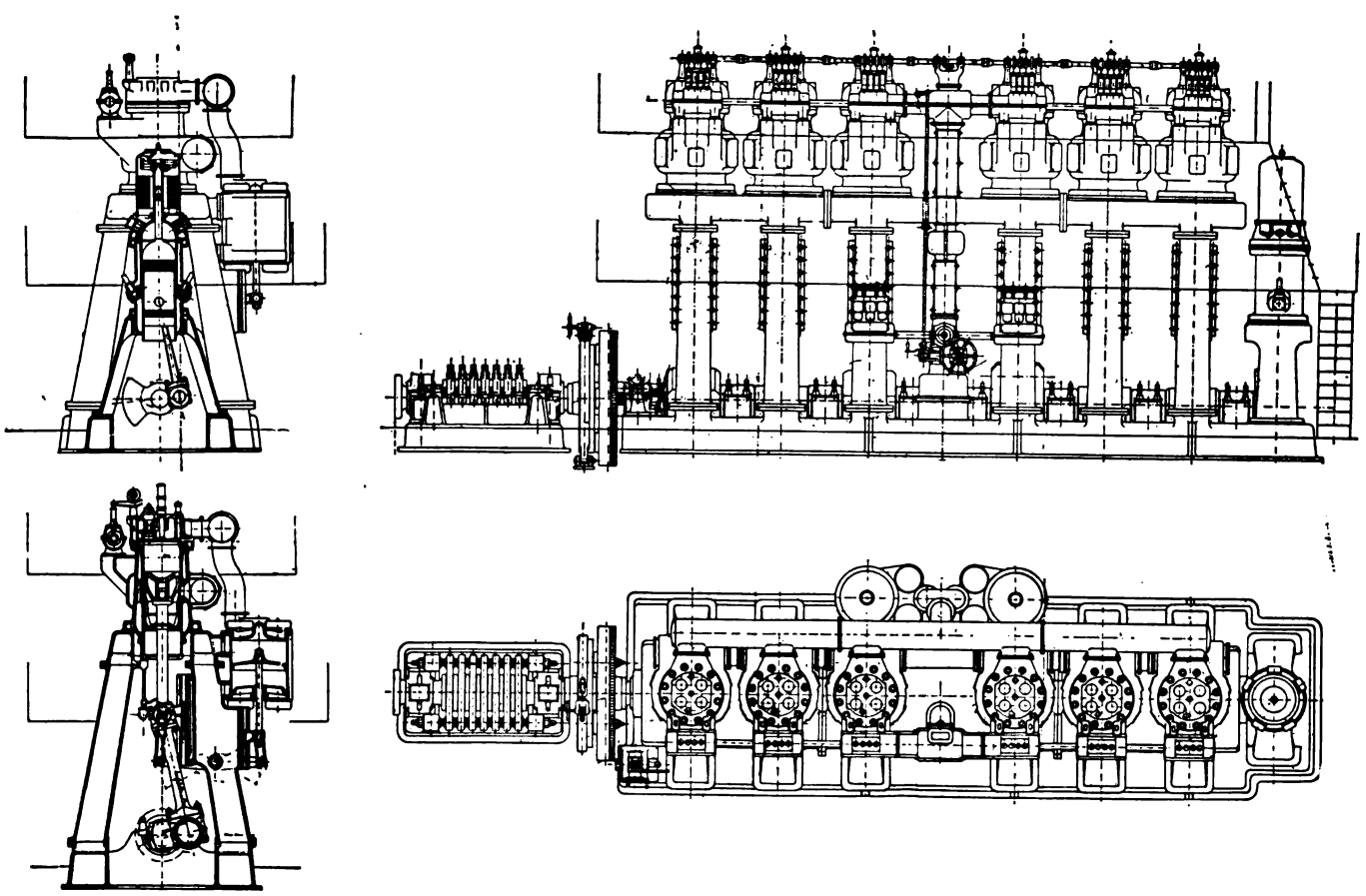
SCHNEIDER & CIE

HEAD OFFICE
42, RUE D'ANJOU, PARIS, FRANCE

NEW YORK OFFICE
21 EAST 40th STREET



General Arrangement of the Schneider 1500 Shaft H. P. Two-Cycle Type Merchant-Marine Diesel Engine. A number of these Sets are under construction.

SUCCESS in construction of high grade machinery relies mostly on judicious selection of materials used. Schneider et Cie are foremost leaders in engineering and metallurgy.

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SCHNEIDER et Cie are the largest Engineering Concern in France, and one of the greatest in the World. Back of their Diesel Engines is the Schneider reputation one century old.

MARINE ENGINES

FOR over 15 years Schneider et Cie have been engaged in the construction of Marine Diesel Engines.

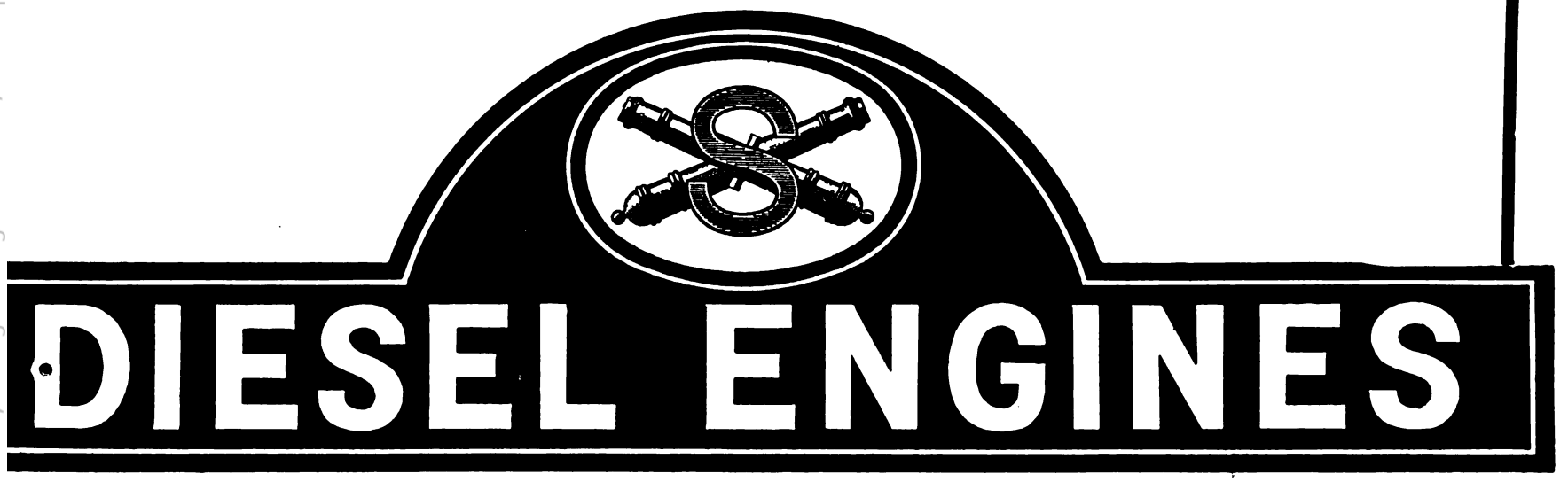
FOR a considerably greater number of years they have been builders of marine steam-engines for freighters and for warships of many Navies.

THEIR experience as shipbuilders and marine engineers has been invaluable in their development of the Diesel engine in both 4-cycle and 2-cycle types.

THEY have now adopted the 2-stroke cycle for engines of large power which have been built up to 1500 bhp, both in the slow-speed crosshead type as well as in the high-speed submarine type, and they are prepared to construct up to 3500 shaft H. P. per engine, or 7000 shaft H. P. per twin-screw set for merchant ships.

Applications for American Licenses and for quotations on Engines should be made to

FRAMERICAN INDUSTRIAL DEVELOPMENT CORPORATION
21 EAST 40th STREET, NEW YORK
(Exclusive Representative



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THE SHIPYARD WITH A TRADITION—FOUNDED IN 1859

What a Buyer of Ships Wants to Know

Every buyer of ships asks himself three principal questions:

Are price and quality right?
Will delivery be made on time?
Are specifications followed exactly?

We have been answering these questions for 62 years in the production of more than 300 vessels of all kinds.

This same quality service is also offered to those who are in the market for engineering or steel construction specialties, with a specialized technical staff readily available for consultation and helpful advice.

Our quotations will interest you

MERCHANT
SHIPBUILDING CORPORATION

Chester, Pa., or 39 Broadway, New York

Ask us to Bid on the Following:

SHIP CONSTRUCTION

Designs ready for Tankers of 10,000 D. W. T. All kinds of ships up to 15,000 D. W. T. Motorships 11,500 D. W. T. with Diesel Engines. Conversion of Steamships to Diesel Motorships with Direct or Electric Drive. Repairs and Reconditioning of Ships.

SOME OF OUR STRUCTURAL AND ENGINEERING SPECIALTIES

Hydro-Electric and Related Structural Equipment such as:
High tension transmission towers. Surge tanks—simple and differential types. Penstock pipes. Taintor gates. "Y" pipes of special improved design. Large diameter riveted and welded steel pipes.

Radio Towers

Steel Structures for Pier Conveyors, Elevators and Related Construction such as: Bin hoppers. Scale hoppers. Boot tanks. Lofter legs and other structural and sheet metal work of similar nature.

Miscellaneous Structural Material such as: Coal bunkers. Ash containers. Dredging pipe—shore and pontoon types. Tunnel sections. Fire escapes—ladders and gratings. **Copper Pipe and General Coppersmith Work. General Machine Work and Repairs. General Carpenter and Joiner Work. Cooling Towers. Steam and Water Heating Plants and Radiators of Special Improved Design. Feed Water Heaters on Improved Principles.**

UNITED AMERICAN LINES
INCORPORATED

Managing Agents: **American Hawaiian Steamship Co.**
American Ship and Commerce Navigation Corporation

General Agents: **Hamburg-American Line**

Hamburg
Joint Services with
Hamburg-American Line
From New York, Boston, Philadelphia, Baltimore, Norfolk and New Orleans
Through bills of lading, via Hamburg, to all Baltic and Scandinavian Ports

North Africa and Levant
New York to Oran, Algiers, Tunis, Bona, Philippeville, Ceuta, Bizerta, Malta (Valetta), Alexandria, Smyrna and Beirut

Dutch East Indies
New York to Penang, Belawan-Deli, Port Swettenham, Singapore, Batavia, Samarang and Soerabaya

Intercoastal Service
With Steamers of the
American-Hawaiian S. S. Co.
New York, Boston and Philadelphia to Los Angeles, San Francisco, Portland, Seattle and Tacoma
Through bills of lading, via Los Angeles to San Diego, via San Francisco, to Oakland, Stockton, Sacramento, California; and to Honolulu, Hilo, Kahului and Port Allen, Hawaiian Islands

Pacific Coast to Europe
U. S. Pacific Coast Ports to the Principal Ports of the United Kingdom and Continent
Direct Fortnightly Sailings

Telephone: Whitehall 1020

General Offices: 39 BROADWAY, New York

Cable Address: "Unamline, N. Y."

Branch Office: 40 Central St., Boston | **Western Freight Office: 327 So. LaSalle St., Chicago** | **Western Passenger Office: 156 No. LaSalle St., Chicago** | **Branch Office: Bourse Bldg., Philadelphia**

General Pacific Coast Agents, Williams, Dimond & Co., 310 Sansome St., San Francisco

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McINTOSH & SEYMOUR CORPORATION

AUBURN, N. Y., U. S. A.

Have Furnished Heavy-Duty Diesel Marine Engines For the Following Ships

Name of Vessel	Dead Weight Tonnage
CETHANA	3300
ISLA DE JAVA	4100
CHALLAMBA	3300
CULBURRA	3300
COCHIN CHINA	2500
BAYONNE	1500
COOLCHA	3300
SOLITARE	5000
BENOWA	4400
BALCATTA	4400
BABINDA	4400
BOOBYALLA	4400
BORRIKA	4400
MARYLAND	4500
TEXACO No. 146	1000
TEXACO No. 147	1000
J. F. PENROSE	4500
BRAMELL POINT	5000
ASTMAHCO No. 3	3000
ASTMAHCO No. 4	3000
BAKOI	2500
CAROLYN FRANCES	1000
DONNA LANE	3300
KENNECOTT	6500

LOOK UP THESE VESSELS WHEN THEY ARE IN PORT

MAIN OFFICE AND WORKS

AUBURN, N. Y., U. S. A.

149 BROADWAY
New York City

815 SHELDON BLDG.
San Francisco, Calif.

412 BISBEE BLDG.
Jacksonville, Fla.

700 INTERSTATE BLDG.
Kansas City, Mo.

412 DALLAS COUNTY STATE BANK BLDG.
Dallas, Texas

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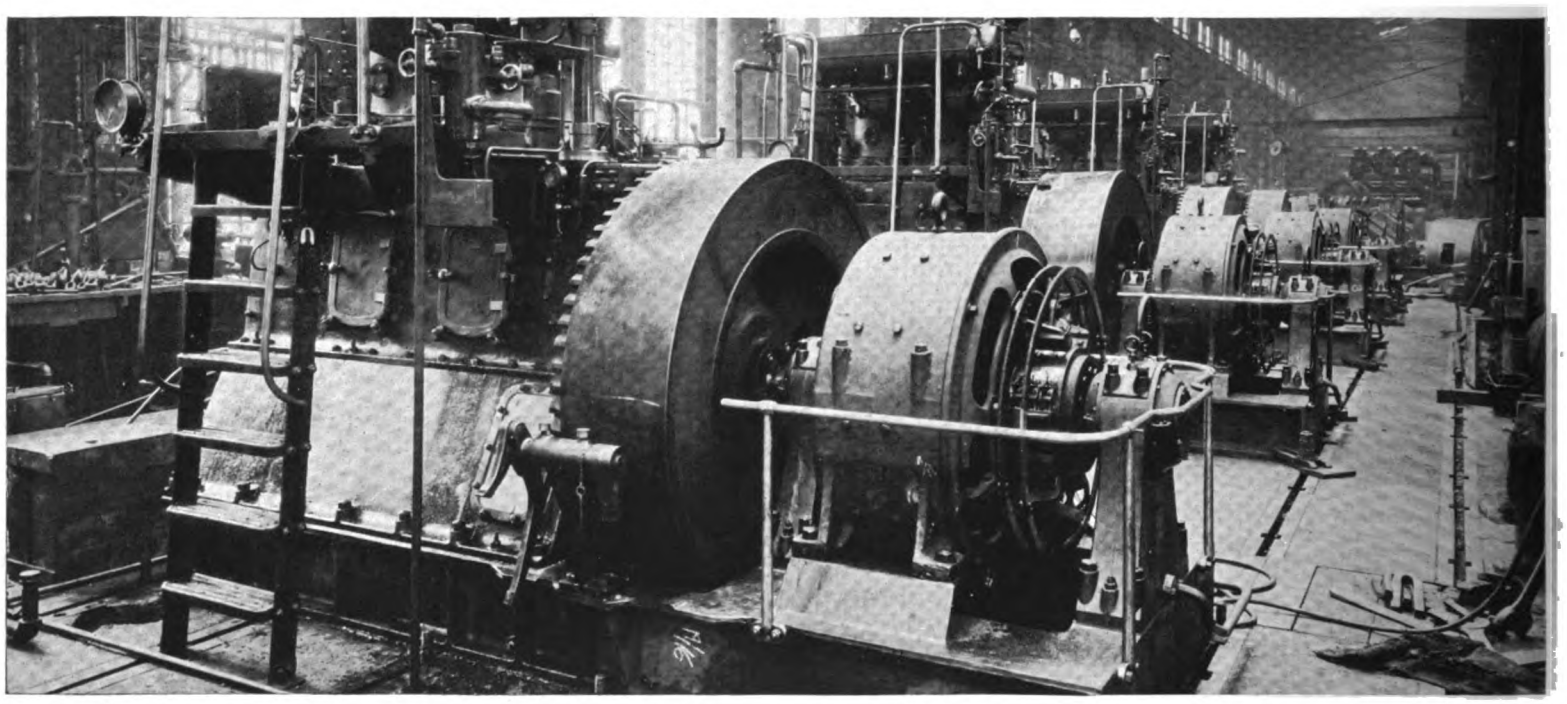
Ever Experience Trouble Arising From

Torsional Vibrations of Shafts?

There is a Solution!

Watch for important full page announcement on this vital subject in January issue



Diesel-Engine Generating Sets for Motorships

The equipment pictured above represents the generating units for the American Hawaiian S.S. Co.'s new Motorships. Each set consists of a Cramp B. & W. Engine coupled to a Diehl Electric Generator of the open Heavy-Duty Type. Diehl Generators are arranged for forced-feed lubrication.

DIEHL MFG. CO., ELIZABETH, N. J., U. S. A.

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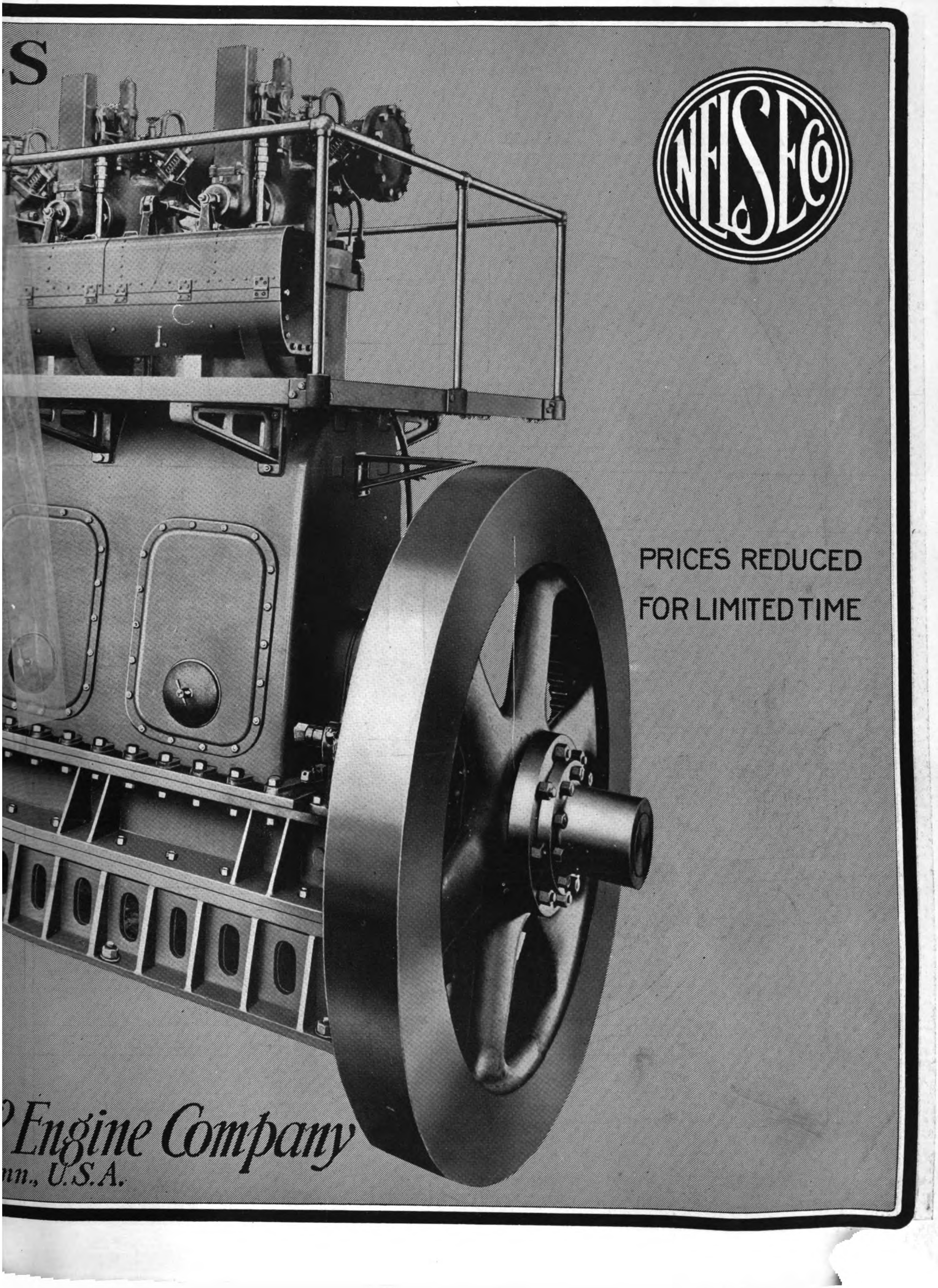

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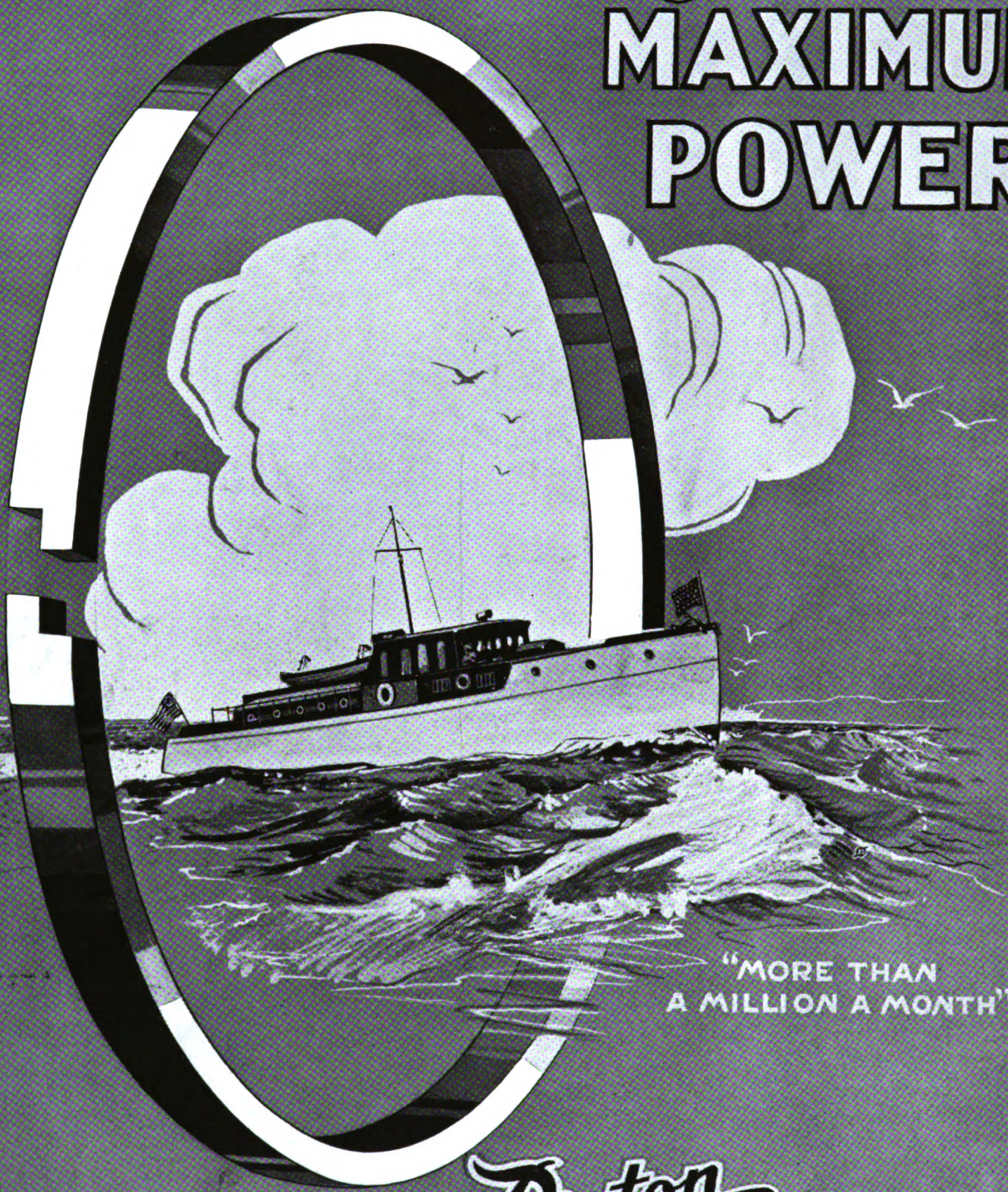
QUALITY SNAP RINGS — give MAXIMUM POWER



"MORE THAN A MILLION A MONTH"

THE Piston RING COMPANY

107 SANFORD ST. MUSKEGON, MICH.

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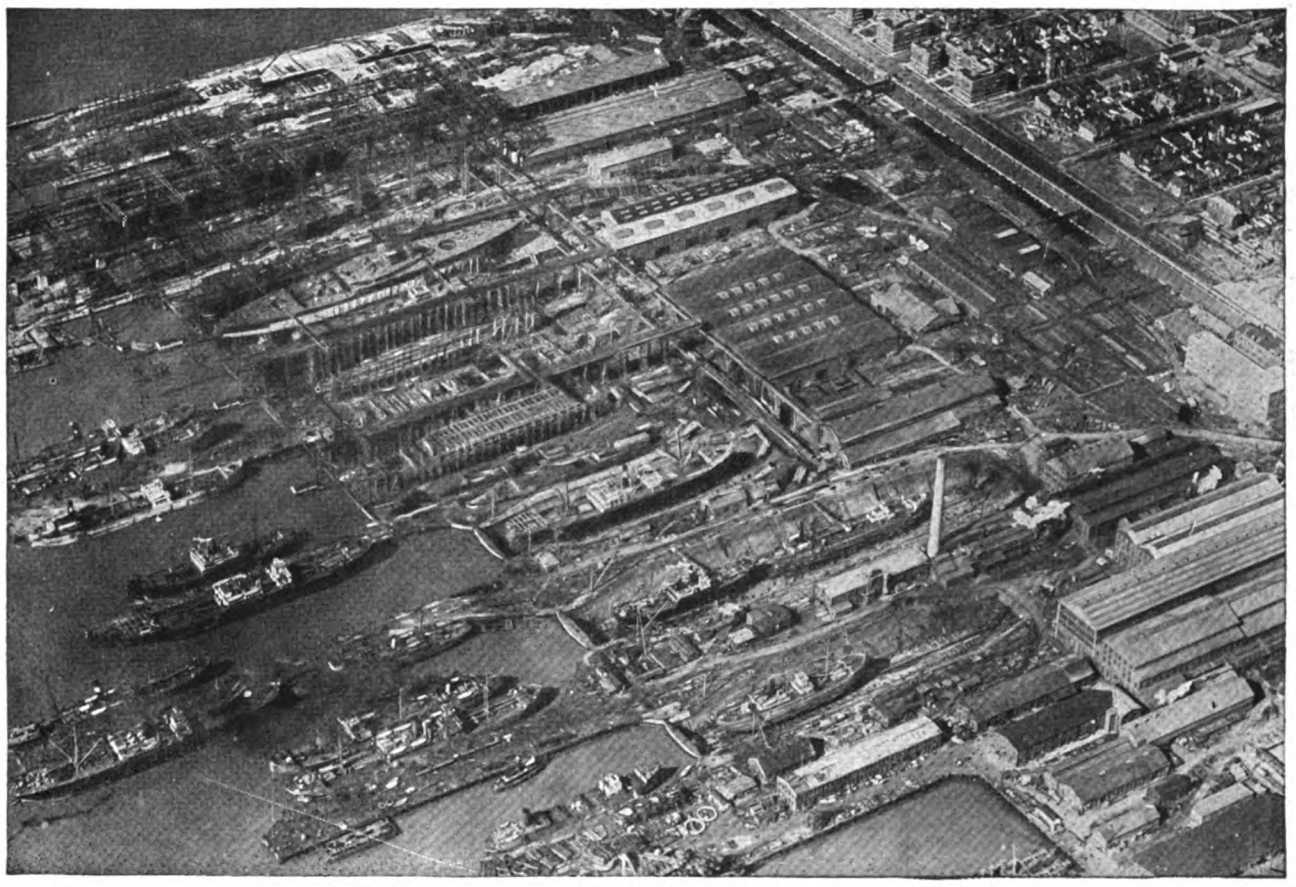
View of New York Shipbuilding Corporation Plant taken from an Aeroplane 1000 feet in the Air July 24, 1919

THE NEW YORK SHIPBUILDING CORPORATION

MAIN OFFICE AND WORKS

CAMDEN, NEW JERSEY



NEWPORT NEWS SHIPBUILDING AND DRY DOCK COMPANY

SHIP BUILDERS AND SHIP REPAIRERS

PLANT LOCATED AT NEWPORT NEWS, VIRGINIA, ON HAMPTON ROADS

THREE LARGE GRAVING DRY DOCKS

Steel, Brass and Iron Foundries, Heavy and Light Forgings, Complete Facilities at One Plant for Doing any Ship Repair Job Quickly

ADDRESS

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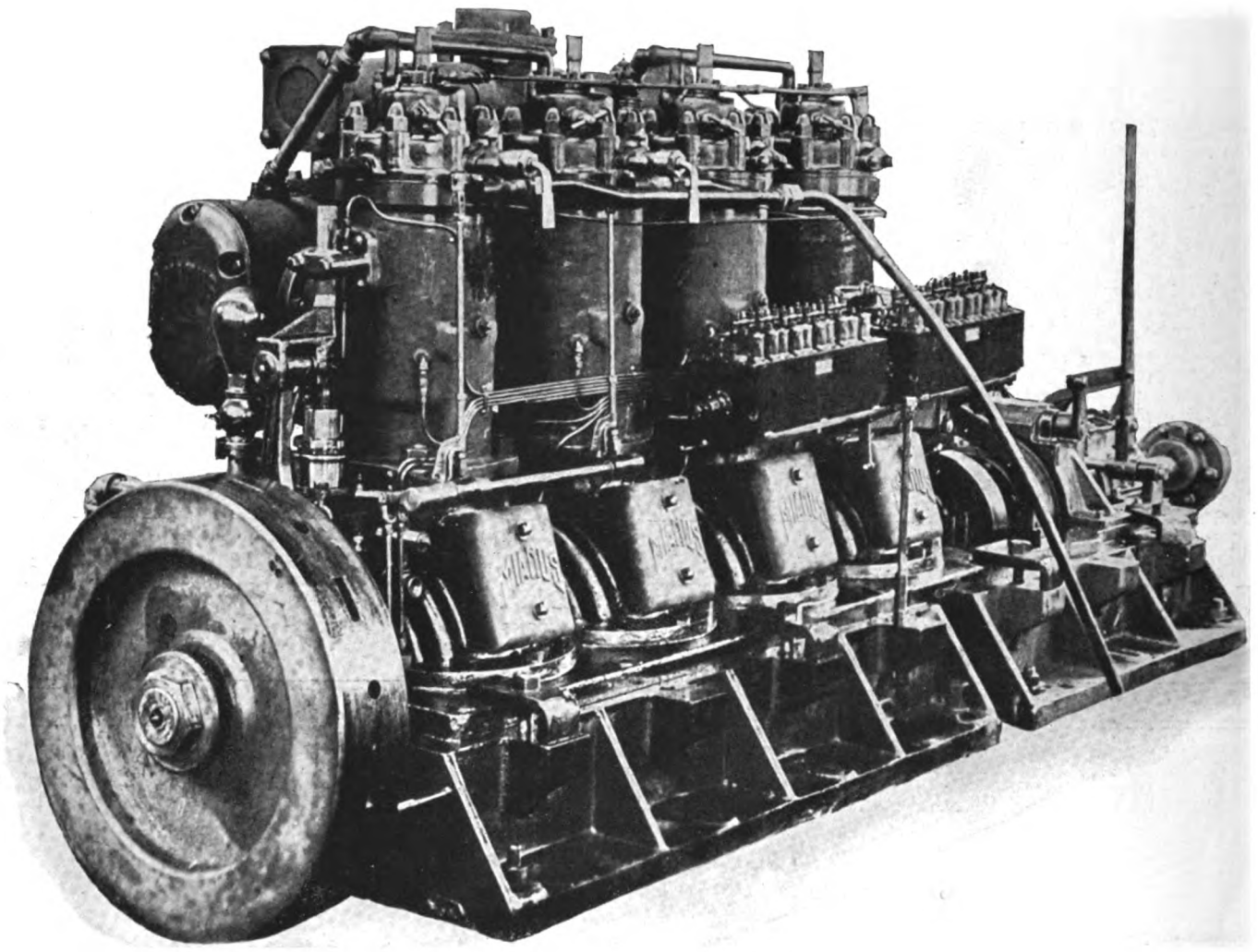
MIANUS

IMPROVED DIESEL ENGINES



60 h.p. four cylinder Mianus improved Diesel marine engine

MARINE *In Sizes up to Ninety Horsepower* **STATIONARY**

IN the Diesel Engine there lies a force whose only rivals for economy are the tides and waterfalls and yet the owner of a Mianus Improved Diesel possesses something more than an efficient mechanism: a range of power, flexible and sure, from zero to par, steady and vibrationless. An energy unbelievable, smooth, flowing as an electric wave and withall, sturdiness and strength in every detail to defy a life time of service.

THE MIANUS MOTOR WORKS

MAGEE AVENUE **STAMFORD, CONN.**

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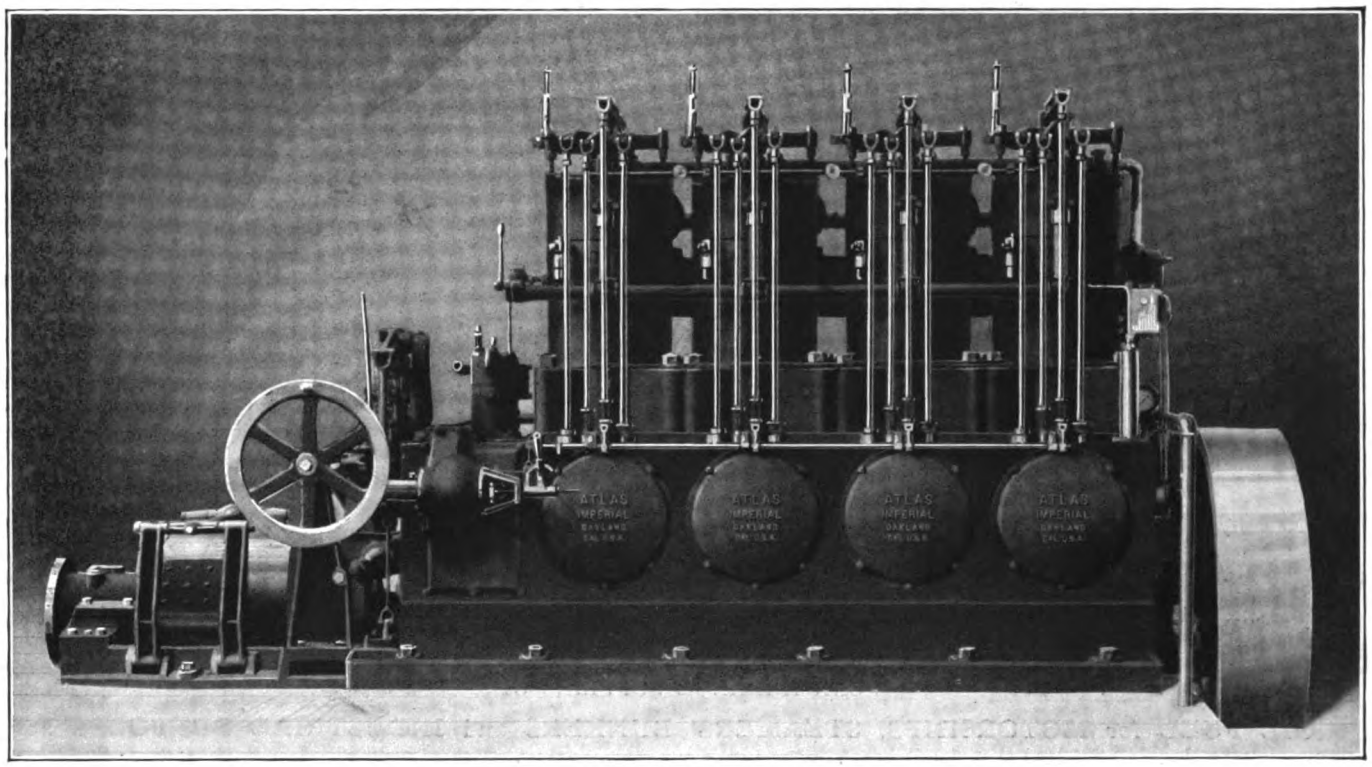
ATLAS-IMPERIAL

MECHANICAL-INJECTION DIESEL ENGINE

A REAL SOLUTION OF YOUR POWER PROBLEM

30 YEARS BUILDING ENGINES

MARINE



STATIONARY

165 H. P. MECHANICAL-INJECTION MARINE DIESEL-ENGINE
BUILT IN 3, 4 AND 6 CYLINDER TYPES 55 TO 350 HORSE-POWER

A POWERFUL, DEPENDABLE AND ECONOMICAL ENGINE, SIMPLE IN OPERATION AND BUILT FOR SERVICE

STOP BURNING UP YOUR PROFITS

DO YOU REALIZE THAT YOU CAN SAVE 90% OF YOUR DISTILATE BILLS

BY USING OUR DIESEL ENGINES

100 HORSE-POWER FOR 20 CENTS PER HOUR

RUNS ON COMMERCIAL FUEL-OIL (CRUDE-OIL) COSTING $1.58 PER BBL. OF 42 GALS.

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ASTORIA, ORE.—Atlas-Imperial Engine Agency, 12th and Bond Sts.
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NEW ORLEANS, LA.—J. G. Davis, 1324 Music St.
NOME, ALASKA—Alaska Lighterage and Commercial Co.
PAPETTE, TAHITI—Et Davio
SAN PEDRO, CAL.—Garbutt & Walch
SEATTLE, WASH.—Atlas Gas Engine Agency, 901 Western Ave.
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VANCOUVER, B. C.—Ferrier and Lucas

ATLAS IMPERIAL ENGINE COMPANY

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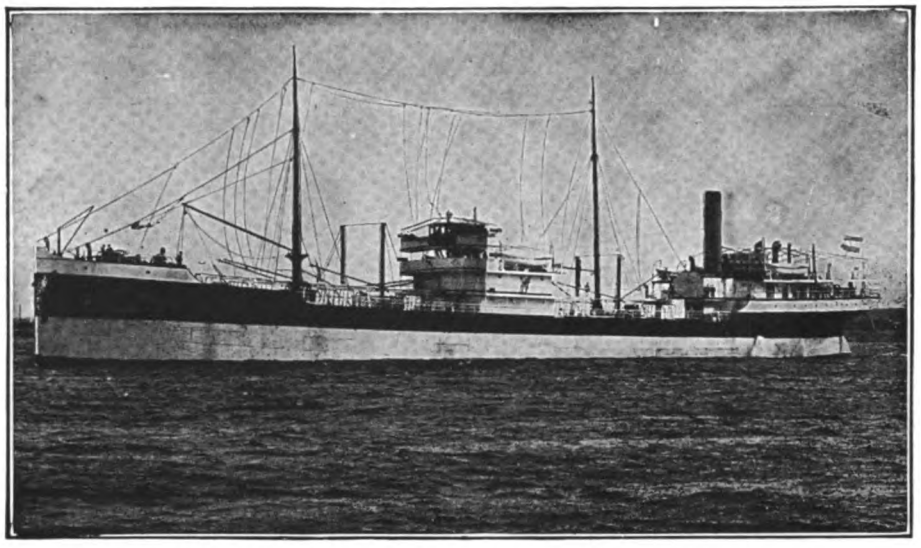
OIL FUEL

THE FUEL OF THE 20th CENTURY

Efficiency *Economy* *Cleanliness*



One of our Fleet of Oil-carrying Diesel-engined Motorships

The Asiatic Petroleum Co., Ltd.

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CAN ARRANGE SUPPLIES OF

OIL FUEL for MOTORSHIPS, STEAMERS' BUNKERS and INDUSTRIAL PURPOSES at

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Antwerp	Colombo	Madras	Pernambuco	Soerabaya
Aomori	Colon (Panama Canal)	Malmo	Piraeus	Southampton
Avonmouth	Curacao	Malta	Portland (Ore.)	Spezia
Augusta (Sicily)	Gemsah	Manila	Port Said	Stockholm
Balboa (Panama Canal)	Genoa	Maracaibo (Venezuela)	Port Soudan	Suez
Balik Pappan	Glasgow	Marseilles	Pulo Bukom	Sydney
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Barton (Manchester Ship Canal)	Hong Kong	Montevideo	Rio de Janeiro	Trieste
Batavia	Hull	Montreal	Sabang	Trinidad
Bilbao	Hurghada	Nagasaki	Saigon	Tuxpan
Boelebaai Ceram	Karachi	Naples	Saitozaki	Valparaiso
Bombay	La Guayra (Venezuela)	New Orleans	Salina Cruz (Pacific)	Vancouver
Buenos Ayres	Las Palmas	New York	San Francisco	Venice
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BUYERS desiring information regarding supplies of and price for **Oil Fuel** for use in Internal-combustion Engines or for other purposes should apply to **The Asiatic Petroleum Company (New York), Limited, 233 Broadway, New York, N. Y., U. S. A.; The Shell Company, of California, Security Building, 343 Sansome Street, San Francisco, Cal., U. S. A.,** or at the above address.

THE Asiatic Petroleum Company also supply **Kerosene Oil** for use in the smaller Internal-combustion Engines and are prepared to supply **Petroleum Spirits, Lubricating Oils, Wax** and **Greases** in all Far Eastern Markets.

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The vast organization and scope of the Standard Oil Company (New Jersey) make it possible to offer Shipping interests world-wide facilities for bunkering with "STANDARD" Fuel Oil. This service offers opportunities for effecting the decided economies resulting from the use of "STANDARD" Fuel Oil.

Ports at which deliveries can be made through arrangements with the Standard Oil Company (New Jersey), 26 Broadway, N. Y.

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*Philadelphia
*Baltimore
*Norfolk
*Charleston
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*Seattle
Tacoma
Astoria
*Portland
*San Francisco
*Richmond
*Point Wells
*San Pedro
*San Diego
*Honolulu

CANADA

*Halifax
*Montreal
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MEXICO

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PANAMA CANAL

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WEST INDIES

Havana
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San Juan
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26 Broadway, New York

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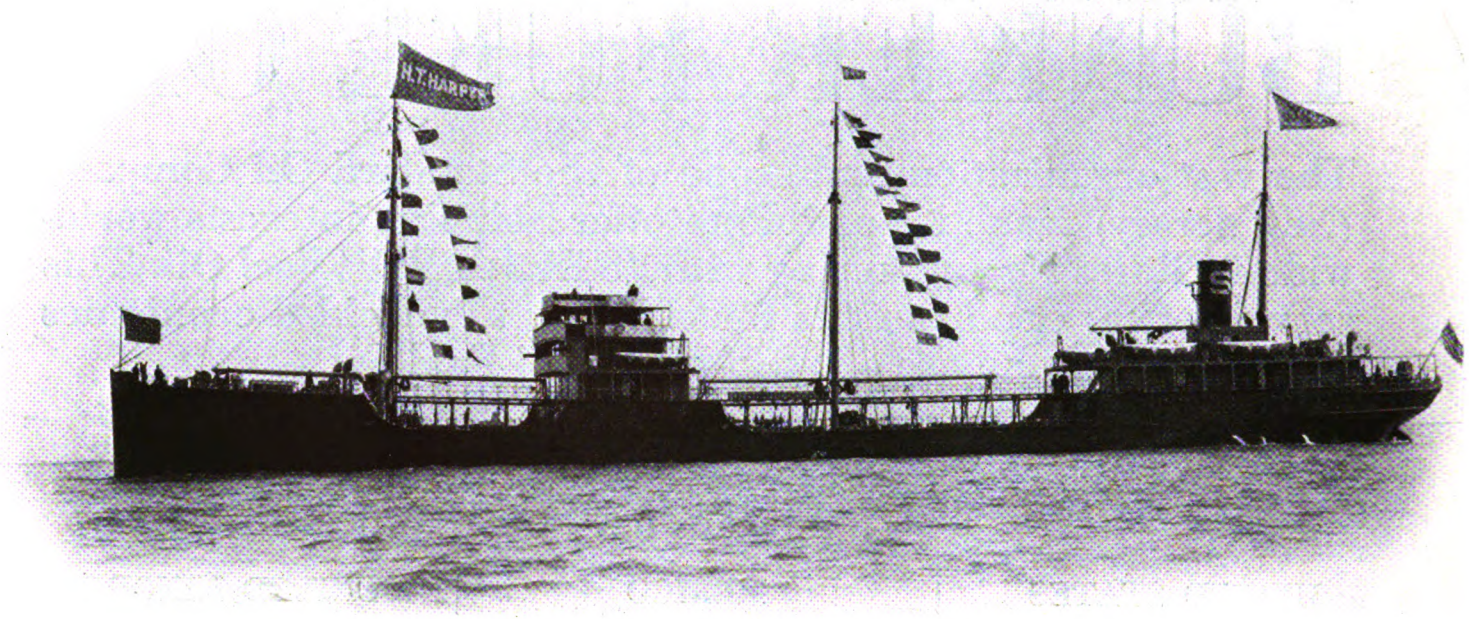

STANDARD Oil Company's New Pacific-Werkspoor Diesel-Driven Oil-Tanker "H. T. Harper" Surpassed All Expectations on Trials and on Her Maiden Voyage.

THE Results Demonstrate the Value of Experienced Assistance in Preference to Unguided Experimenting. She Is the Second Sucessful Werkspoor Diesel-Engined Motorship Built in America, the First Being the "Charlie Watson."

HER Twin 850 Shaft Horsepower Propelling-Engines Were Built by the Pacific Diesel Engine Co. of Oakland Under Werkspoor License and Under Supervision of Experts from the Werkspoor Works, Amsterdam.

Performance Average of the "Harper's" Diesel Engines

Shop Tests	1,694 Shaft Horsepower
Sea Trials	2,203 Shaft Horsepower
Maiden Voyage	1,783 Shaft Horsepower
Ship's Average Speed on Trials . . .	11.8 Knots
Ship's Average Speed on Maiden Round-Voyage	11.305 Knots
Fuel Used on Shop Tests . .	14 degs Baume Boiler Oil

Only One More Available American Constructional License for Marine-Engines

WERKSPOOR-AMSTERDAM-HOLLAND

EXISTING U. S. LICENSEES:
Pacific Diesel Engine Company
Oakland, Cal.
New York Shipbuilding Corporation
Camden, N. J.
Newport News Shipbuilding & Dry Dock Co.
Newport News, Va.

U. S. REPRESENTATIVE
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TRIBUNE BUILDING, NEW YORK, N. Y.

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GÖTEBORG—SWEDEN

DIESEL-DRIVEN CARGO MOTORSHIP RECENTLY BUILT AND ENGINED BY GÖTAVERKEN.

SHIPBUILDERS, ENGINEERS AND SPECIALISTS IN THE REPAIR OF MOTORSHIPS, STEAMSHIPS AND THEIR RESPECTIVE MACHINERY

TWELVE GÖTAVERKEN-BUILT MOTORSHIPS IN SERVICE, AGGREGATING 99,450 TONS D.W. AND 37,400 I.H.P., ALSO ONE DIESEL-DRIVEN SALVAGE-VESSEL OF 1,250 I.H.P. IF YOUR MOTORSHIPS NEED REPAIR IN EUROPEAN WATERS, SEND THEM TO OUR YARD IN PREFERENCE TO A PLANT THAT HAS HAD LITTLE OR NO EXPERIENCE WITH THE CONSTRUCTION OF HIGH-POWERED DIESEL-ENGINED MOTORSHIPS. WE HAVE BUILT SUCCESSFUL STEEL MOTORSHIPS OF LARGE SIZE UP TO 14 KNOTS SPEED. OUR LARGE FOUNDRY CAN SUPPLY DIESEL-ENGINE CASTINGS TO ORDER.

CONSTRUCTIONAL LICENSEES IN SWEDEN OF THE BURMEISTER & WAIN DIESEL MARINE OIL-ENGINE.

DIESEL ENGINE WORKS

SHIPYARD—FOUNDRY

FLOATING DRY-DOCK WITH A LIFTING CAPACITY OF 12,000 TONS

POSTAL AND TELEGRAPHIC ADDRESS

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WERKSPOOR

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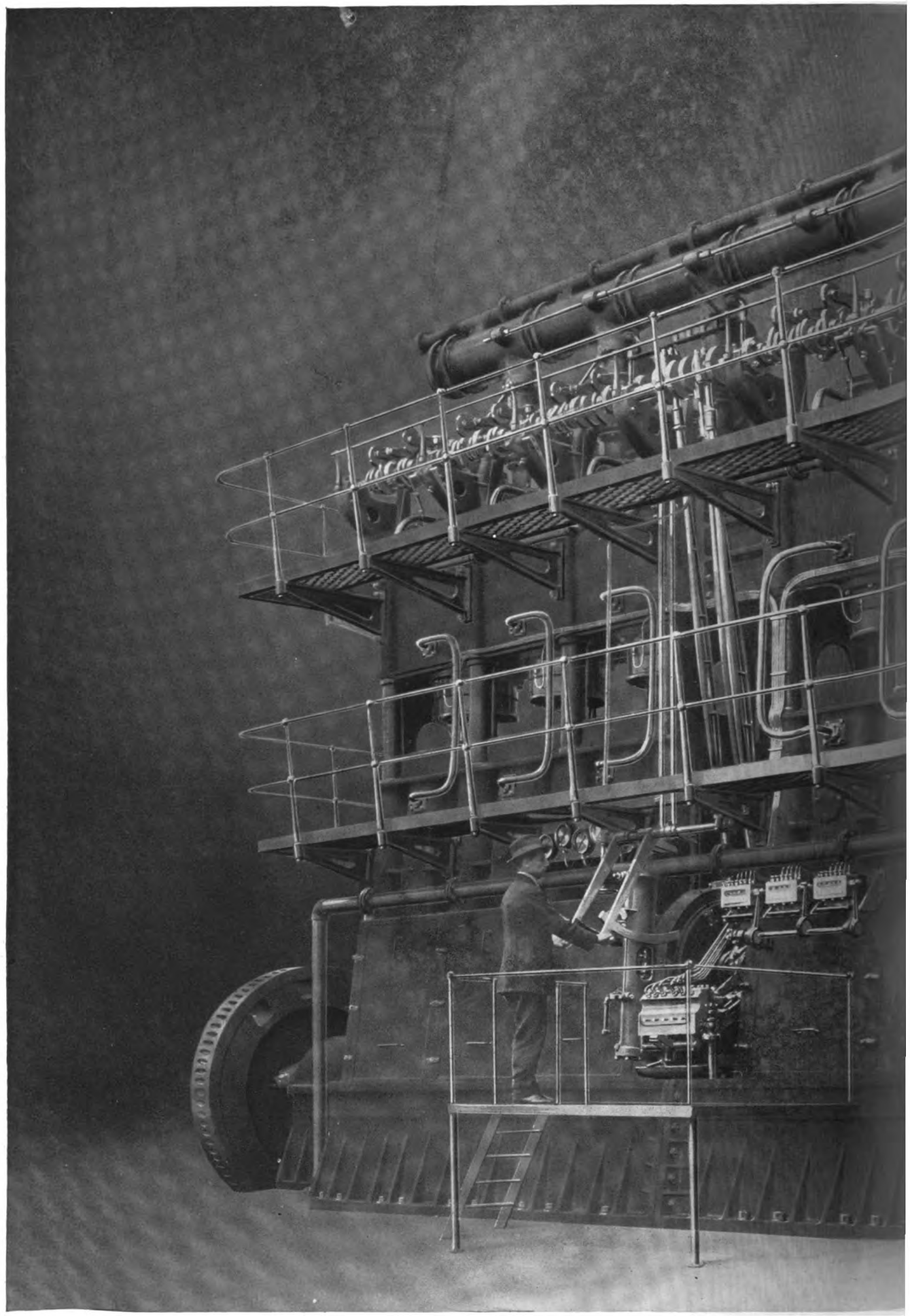

ONE OF THE 850 BHP WERKSPOOR MARINE DIESEL ENGIN

PACIFIC DIESEL

OAKI

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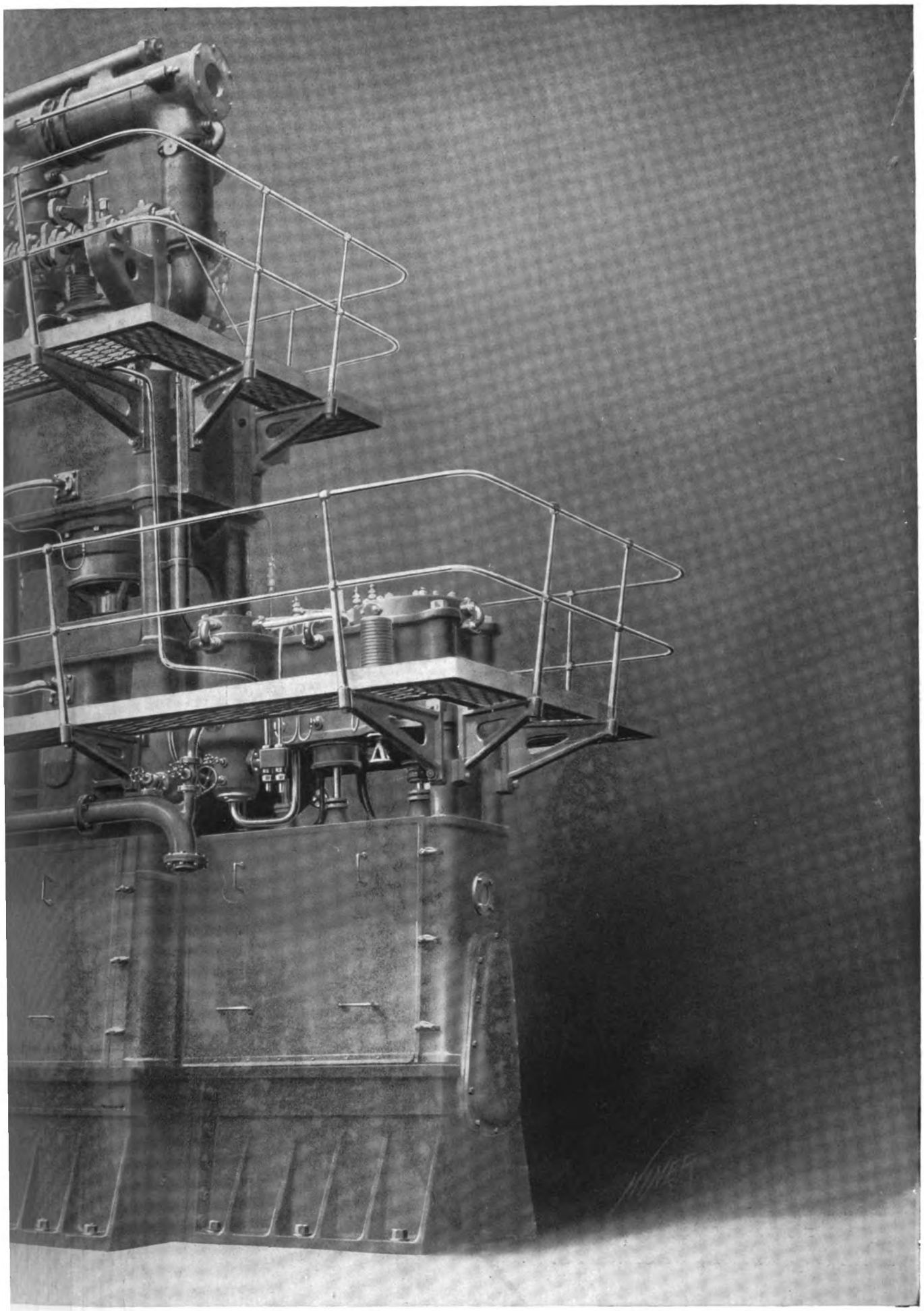
SEL ENGINES



ED IN THE STANDARD OIL CO.'S MOTOR-TANKER "H. T. HARPER."

NGINE COMPANY

CALIFORNIA

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To Reach the Pacific Coast Field

PACIFIC MOTOR BOAT

The Only Journal Devoted Exclusively to the Marine Internal-Combustion Engine Interests of the Pacific

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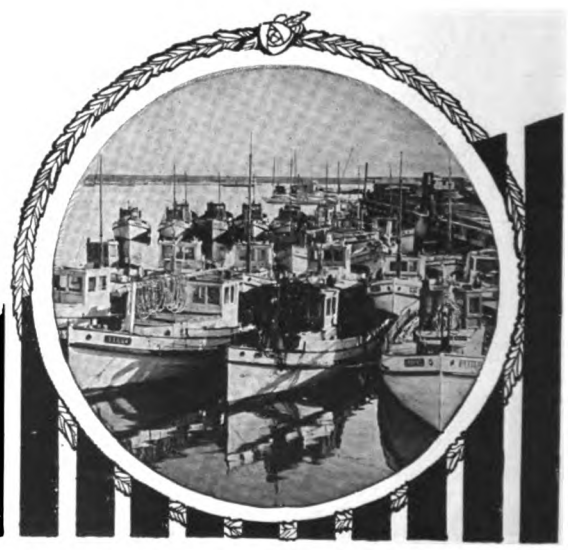

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The First Electrically Driven Ferry

Diesel Electric Drive doubles vehicle capacity, reduces fuel consumption one-half, and eliminates standby losses and smoke. Maneuvering is facilitated and the entire control of the boat is in the hands of the pilot.

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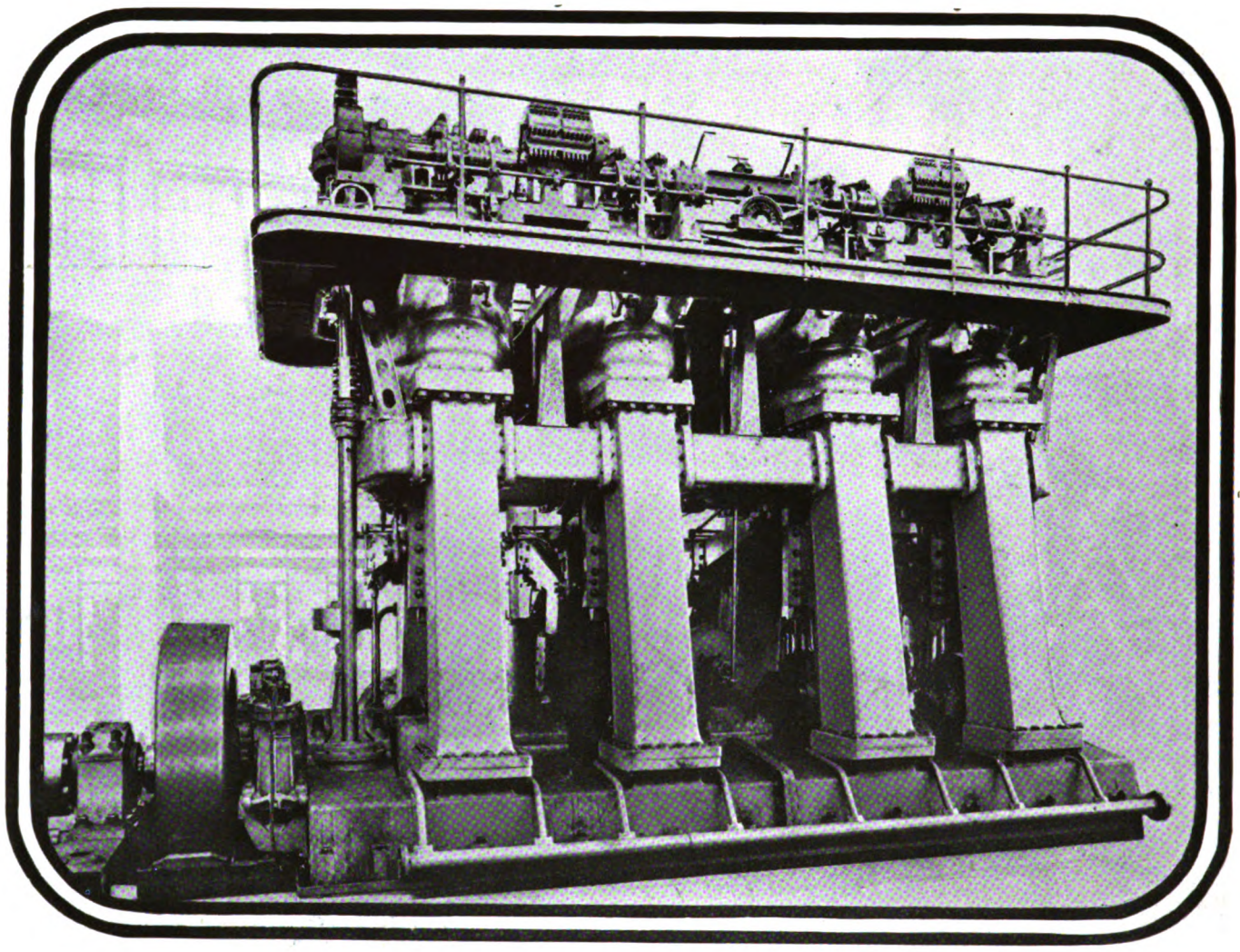
THE

LATEST NOBEL *ENGINE*



1600 B.H.P. at 110 Revs/Min.

FOUR-CYLINDER TWO-CYCLE REVERSIBLE MARINE-ENGINE

Manufactured by

SVENSKA AKTIEBOLAGET NOBEL-DIESEL

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THE WM. CRAMP & SONS

SHIP & ENGINE BUILDING CO.

PHILADELPHIA, PA., U. S. A.

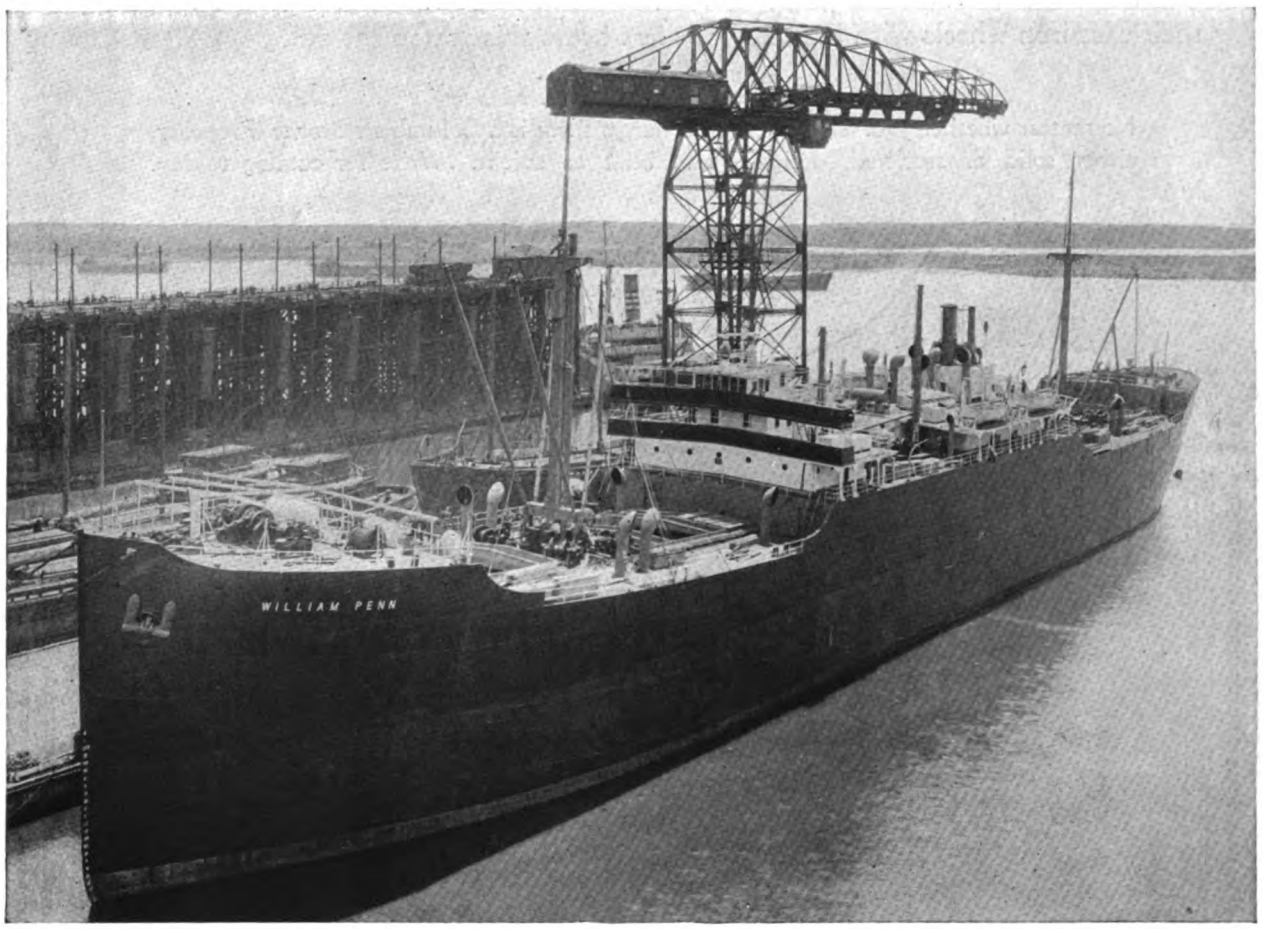
U. S. LICENSEE FOR THE

BURMEISTER & WAIN

SYSTEM OF

DIESEL MOTORSHIP PROPULSION

AS ESPECIALLY ADAPTABLE TO CARGO AND SEMI-CARGO SHIPS. 66 VESSELS NOW COMPLETED BY PARENT COMPANY AND LICENSEES REPRESENTING OVER 200,000 I. H. P. IN SETS FROM 1500 TO 6600 I. H. P.



U. S. SHIPPING BOARD'S MOTORSHIP "WM. PENN" 12,375 TONS D. W. 11½ KNOTS.

ON 6 HOUR TRIAL OIL CONSUMPTION. 308 LBS. PER I. H. P. MAIN ENGINES ALL PURPOSES, OR 14 TONS PER DAY. THIS IS ONE-THIRD THAT OF BEST STEAM TURBINE INSTALLATION UNDER MOST FAVORABLE CONDITIONS. MOTORSHIP ECONOMY DOES NOT DETERIORATE IN SERVICE NOR IS IT AFFECTED ADVERSELY BY TROPICAL CONDITIONS AS WITH TURBINE VESSELS.

TWO SIMILAR BURMEISTER & WAIN INSTALLATIONS ARE UNDER CONSTRUCTION BY THE WILLIAM CRAMP & SONS FOR TWO VESSELS FOR THE

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ENGINES 740 MM (29.11 INS.) DIAM. 1150 MM (45.27 INS.) STROKE. DESIGNED FOR 4500 I. H. P. AT 115 R.P.M.

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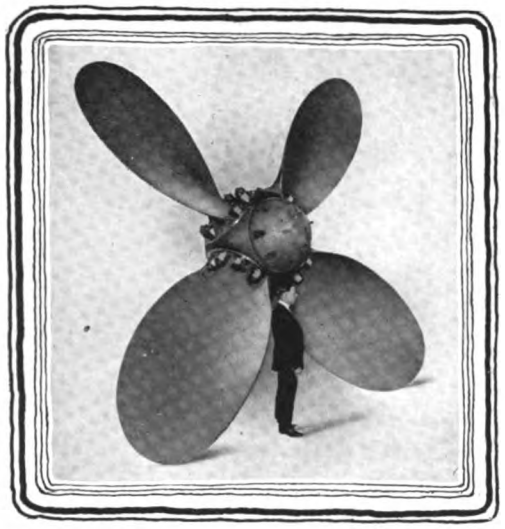
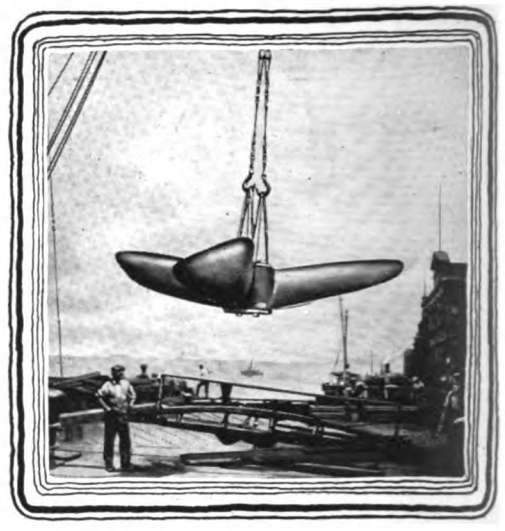


Columbian Bronze Propellers

The Most Economical and Efficient Propellers for Commercial Ships of All Kinds



"Pioneer," a Gloucester Auxiliary Schooner, powered with a 70 B.H.P. Bolinders Semi-Diesel Oil Engine and equipt with a three blade style "H" Columbian Bronze Propeller 48 in. by 30 in., is a typical example of the type of ship for which Columbian Bronze Propellers are so well fitted.

Increased speed, increased efficiency and increased economy are all made possible by the installation of bronze propellers. The rapidly growing list of ships replacing their cast iron wheels with bronze propellers bears this statement out.

No matter whether your ship be small or large, there is a Columbian Bronze Propeller, either solid or sectional, designed and built to suit it. Write for catalog to-day.

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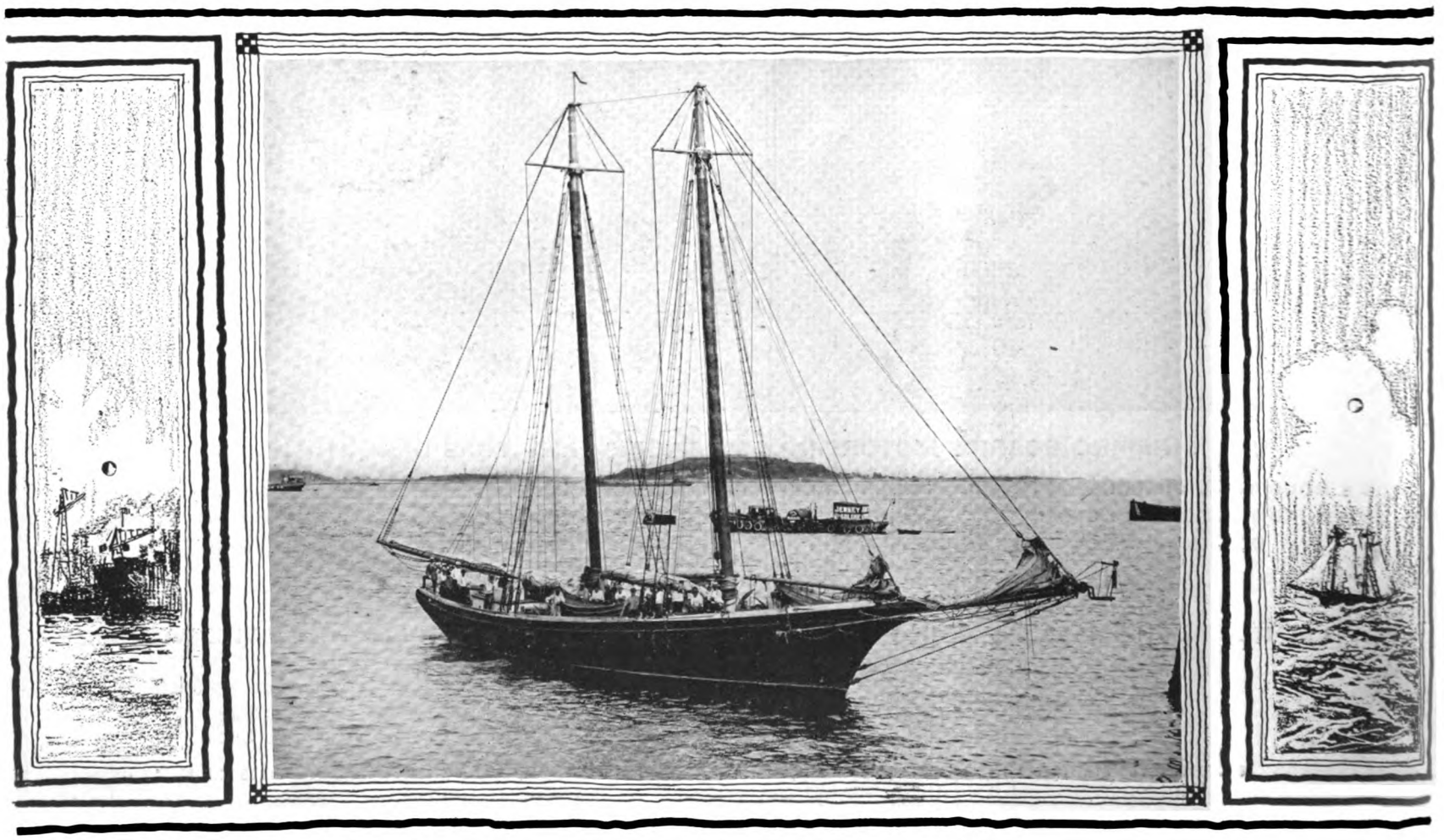
522 FIFTH AVENUE, NEW YORK CITY



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Price Oil Engines

With these engines fuel injection is direct and positive. Complete atomization is obtained without the use of compressed air.

The elimination of the high pressure air compressor

- Reduces the floor space required for the power plant.
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- Reduces the possibilities of break-down and the supply of repair parts.
- Avoids troubles incident to the use of high air pressures.
- Makes attendance easier.

Price Marine Oil Engines have many other features which will interest you. Send for descriptive bulletins.

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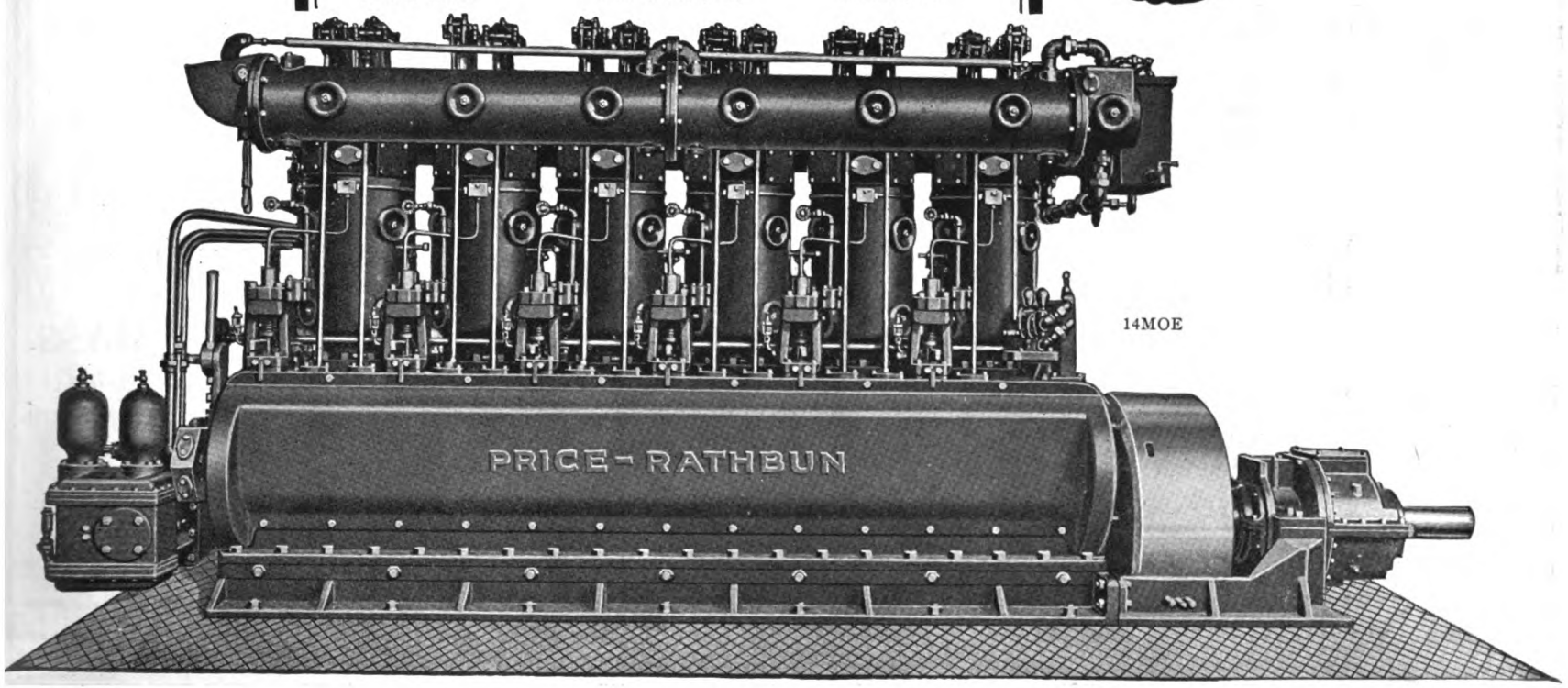
PRICE OIL ENGINES



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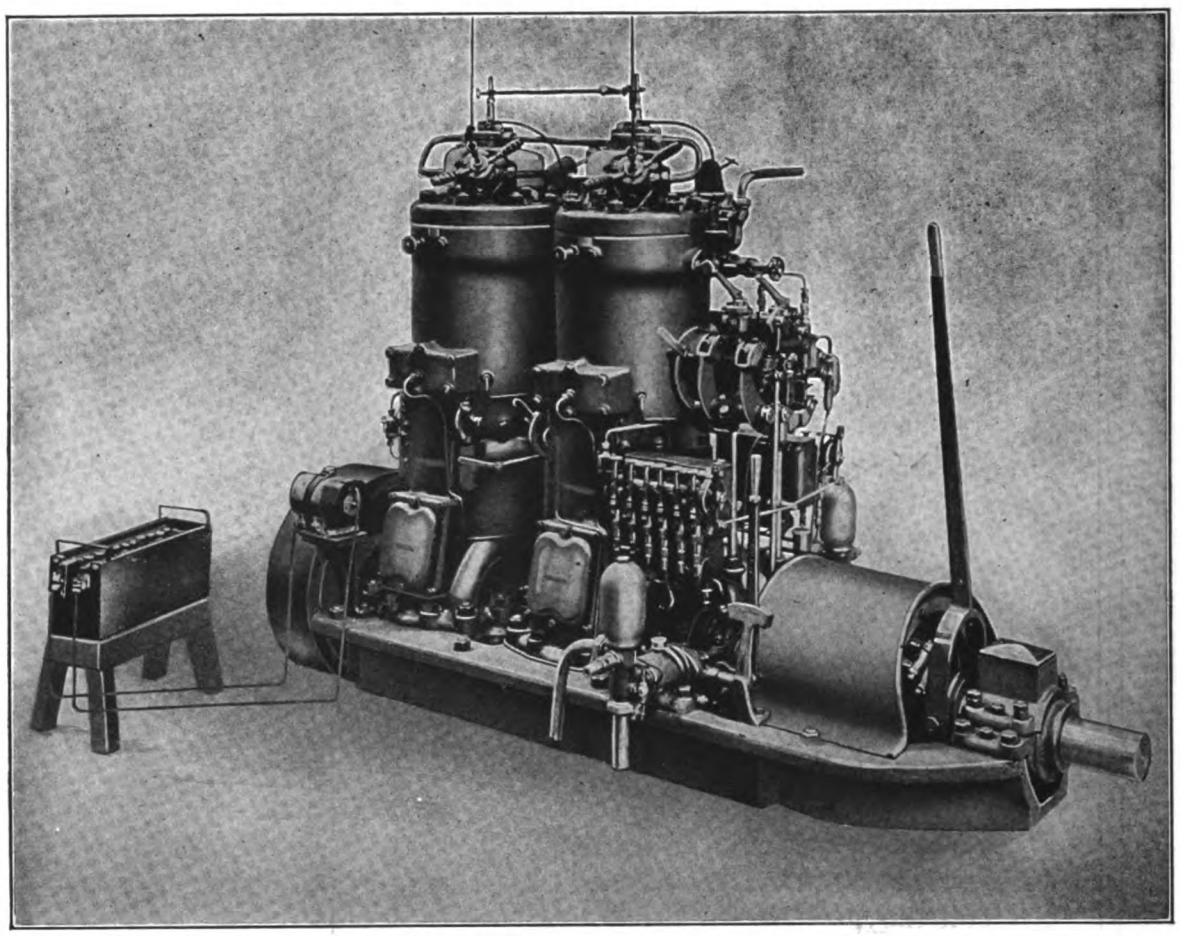
BOLINDERS



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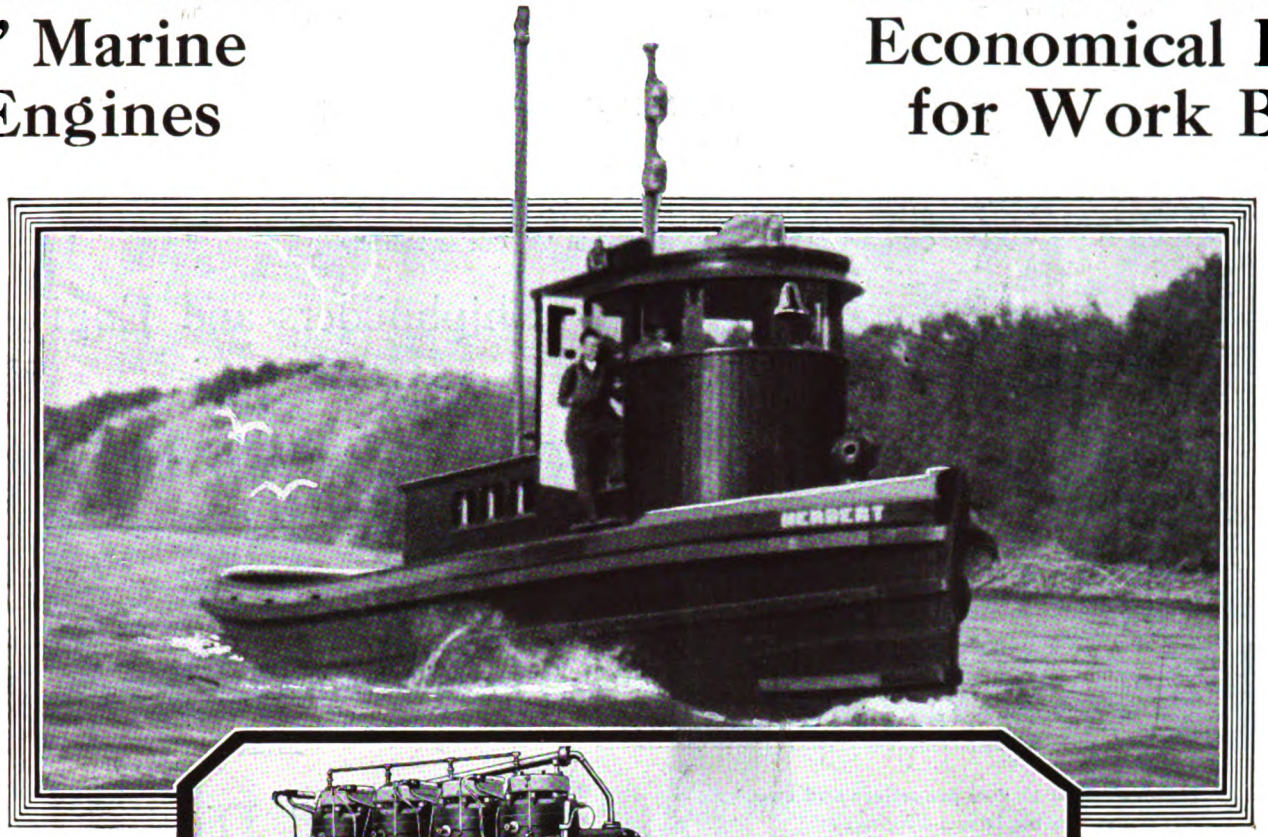

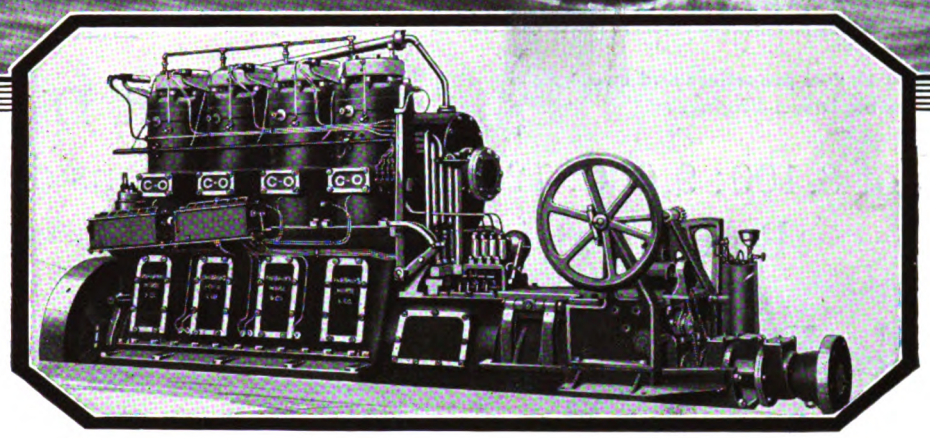

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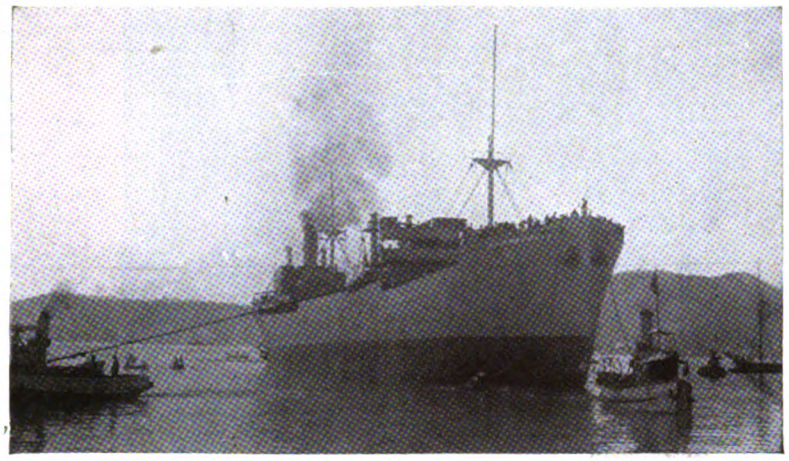

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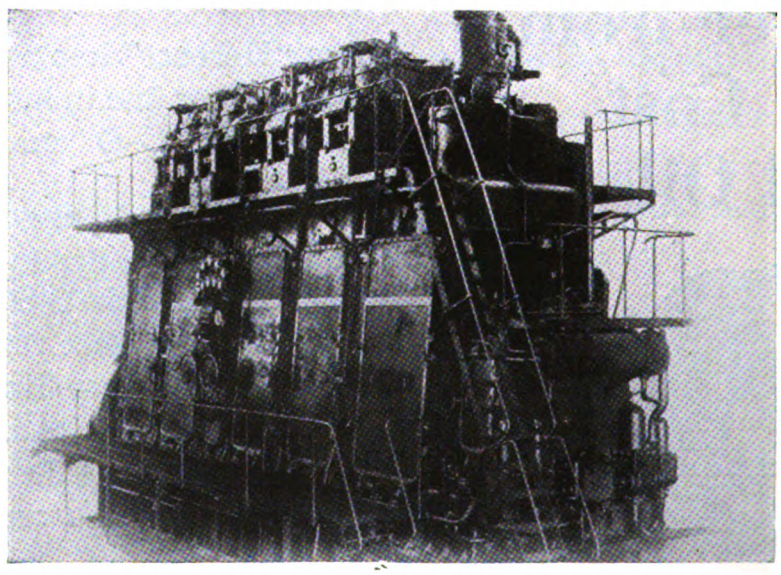

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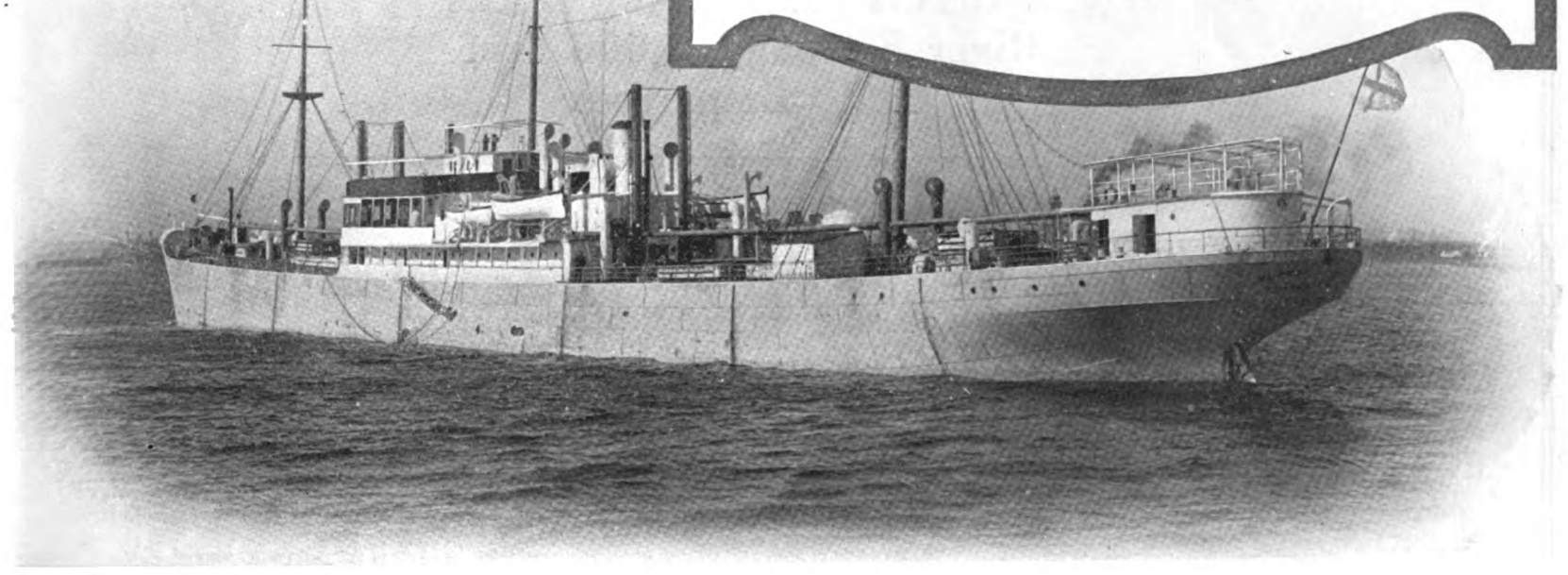

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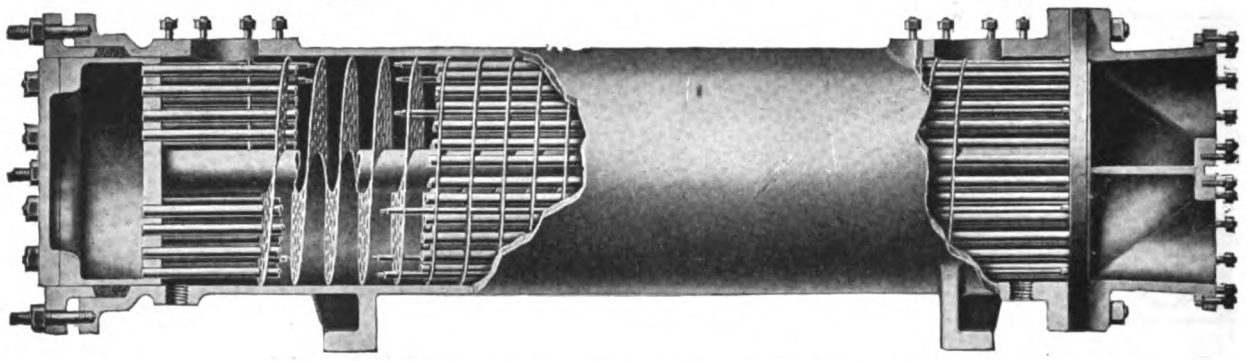

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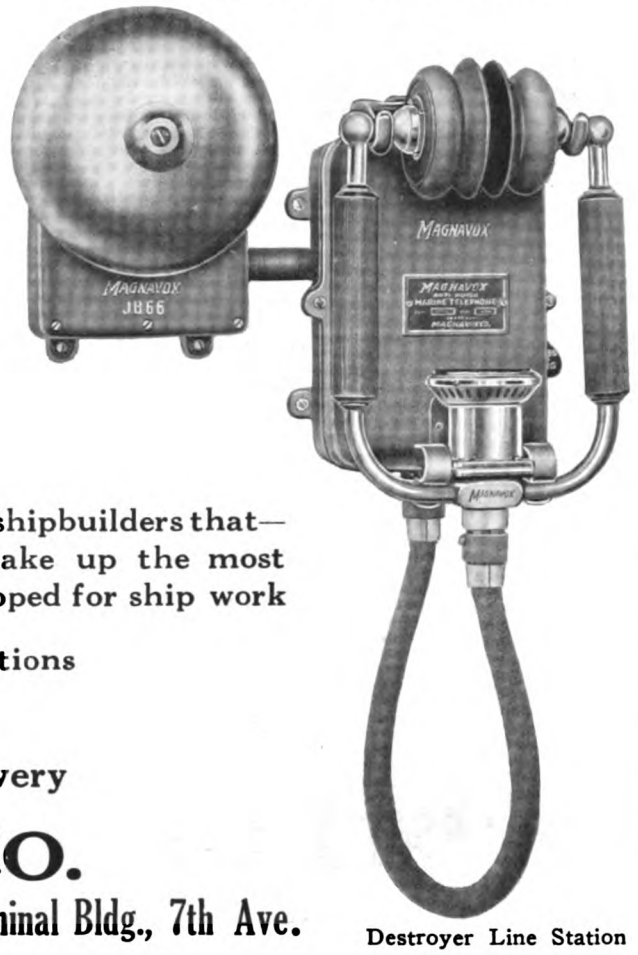

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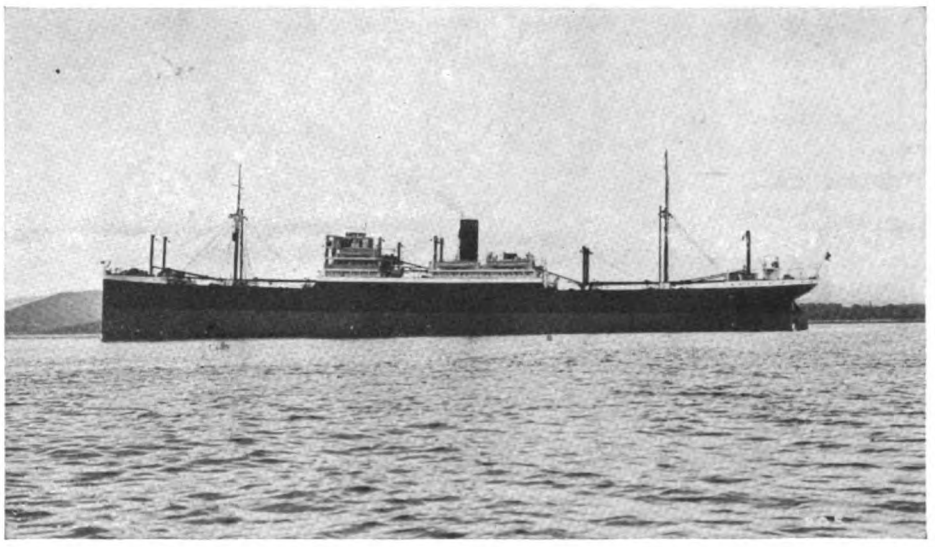

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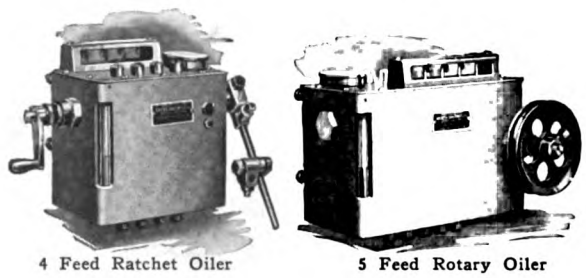

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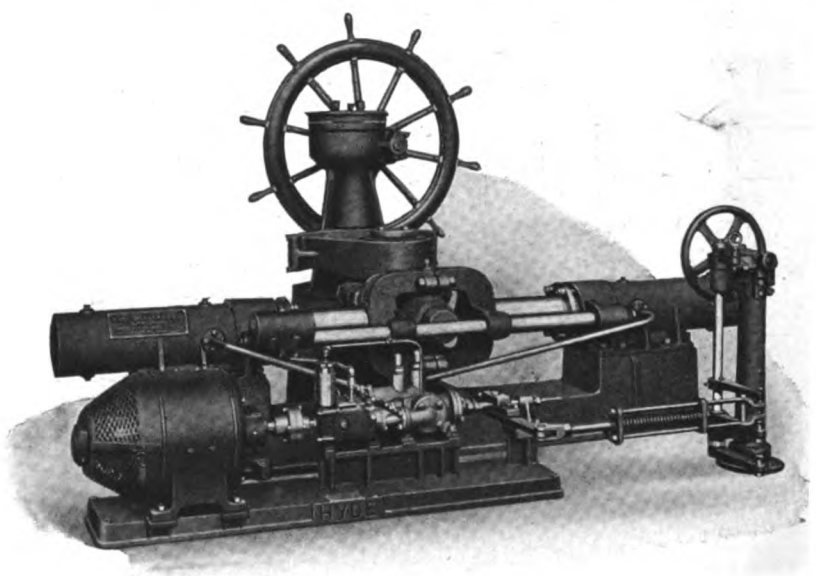

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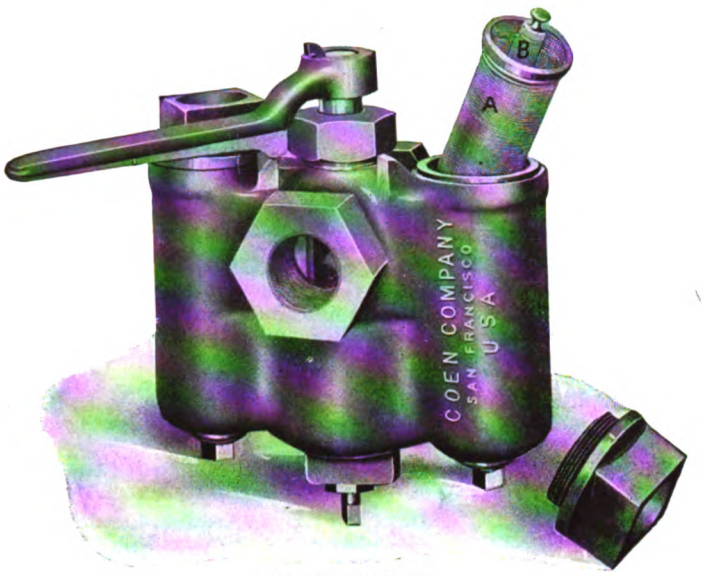

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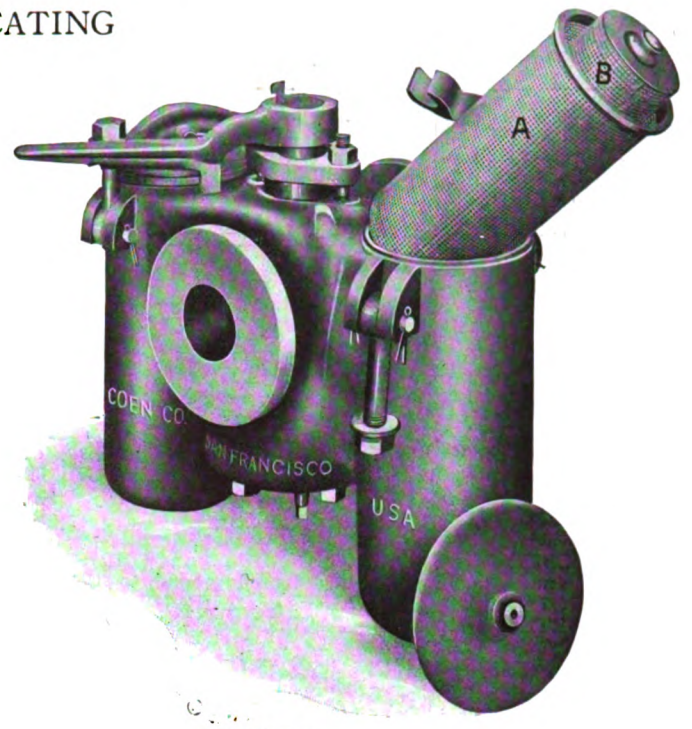

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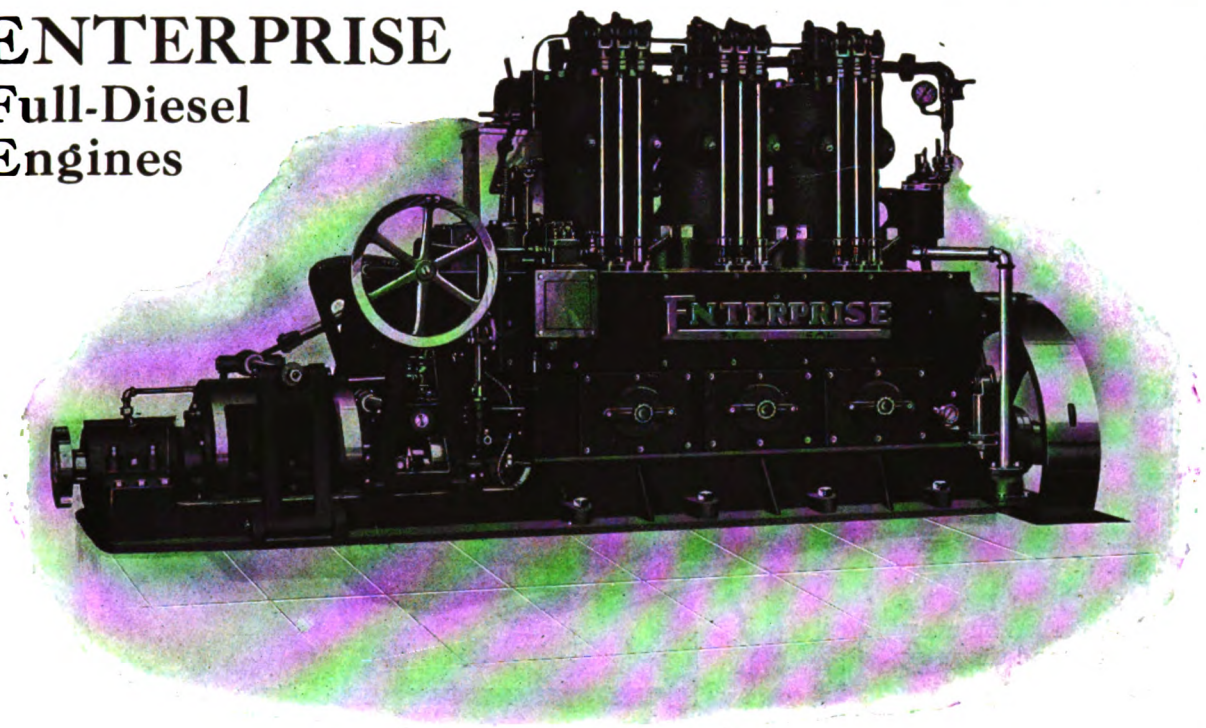

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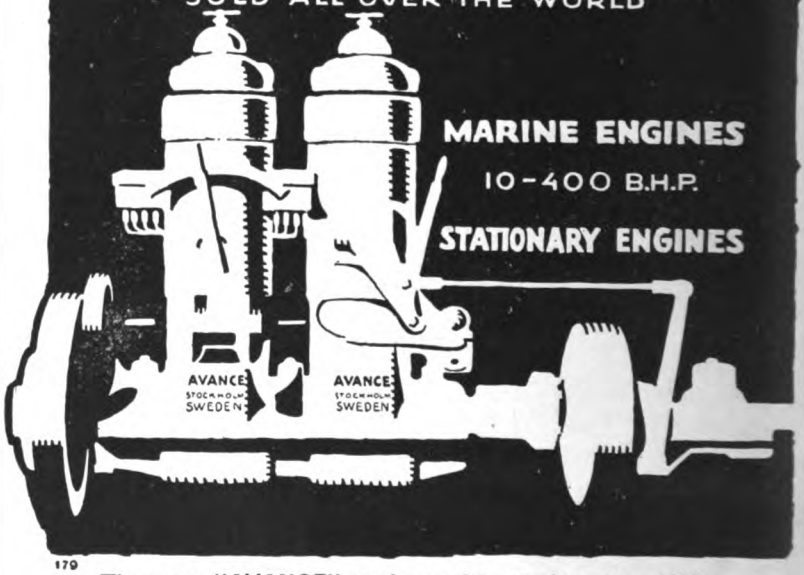

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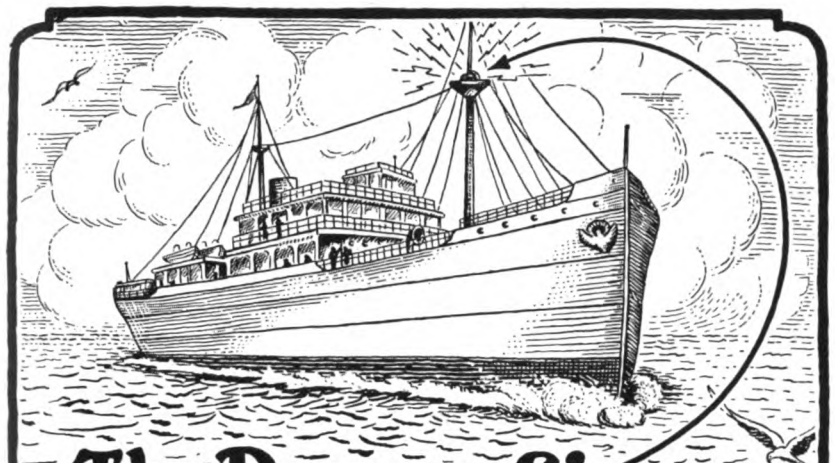

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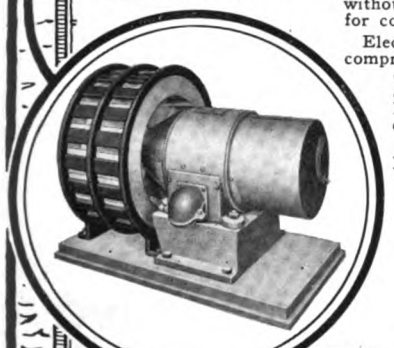

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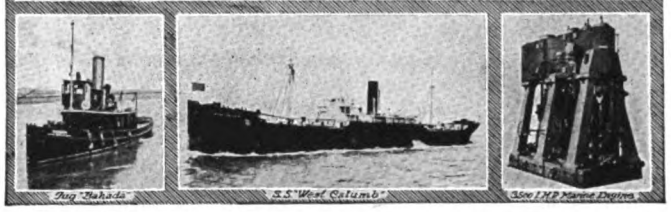

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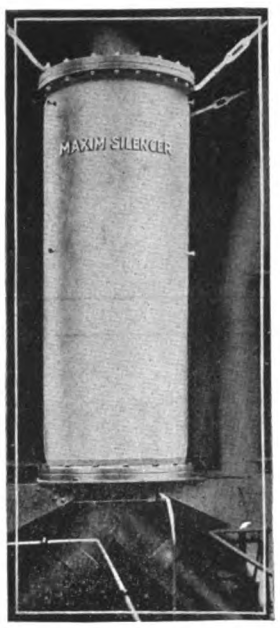

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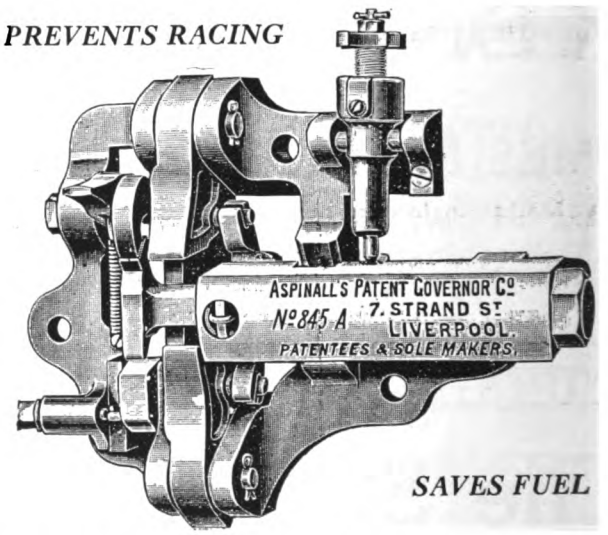

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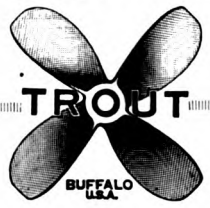

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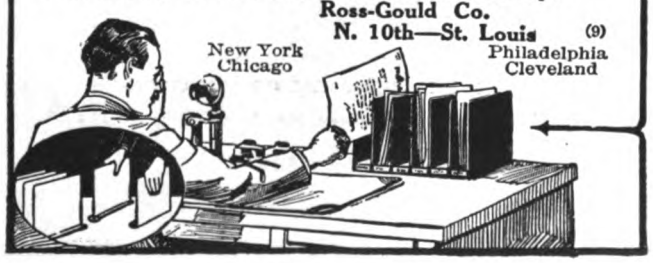

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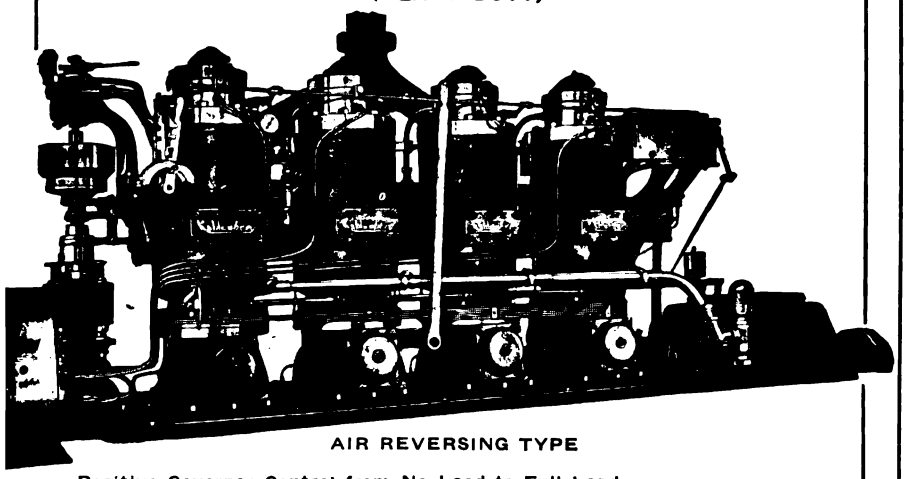

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MARINE DIESEL ENGINES
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FOUR CYCLE TYPE

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AMSTERDAM, HOLLAND

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DIESEL ENGINES

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NEW YORK SHIPBUILDING CORPN.

CAMDEN, N. J., U.S.A.

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(INCORPORATED)

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CABLE ADDRESS "SMAWOK"

DOW PUMP & DIESEL ENGINE CO.

ALAMEDA, CALIFORNIA, U. S. A.

MECHANICAL INJECTION

MARINE DIESEL ENGINES

FOUR CYCLE TYPE

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DIRECT REVERSIBLE, SIZES 150 B.H.P. TO 500 B.H.P.

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SIZES: 120 B. H. P. AND UPWARDS
PACIFIC COAST OFFICE
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NEW YORK OFFICE 120 BROADWAY
NORDBERG MACHINERY

GÖTAVERKEN
GÖTEBORG, SWEDEN
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SAN FRANCISCO, CAL., U. S. A.
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FOUR-STROKE PRINCIPLE
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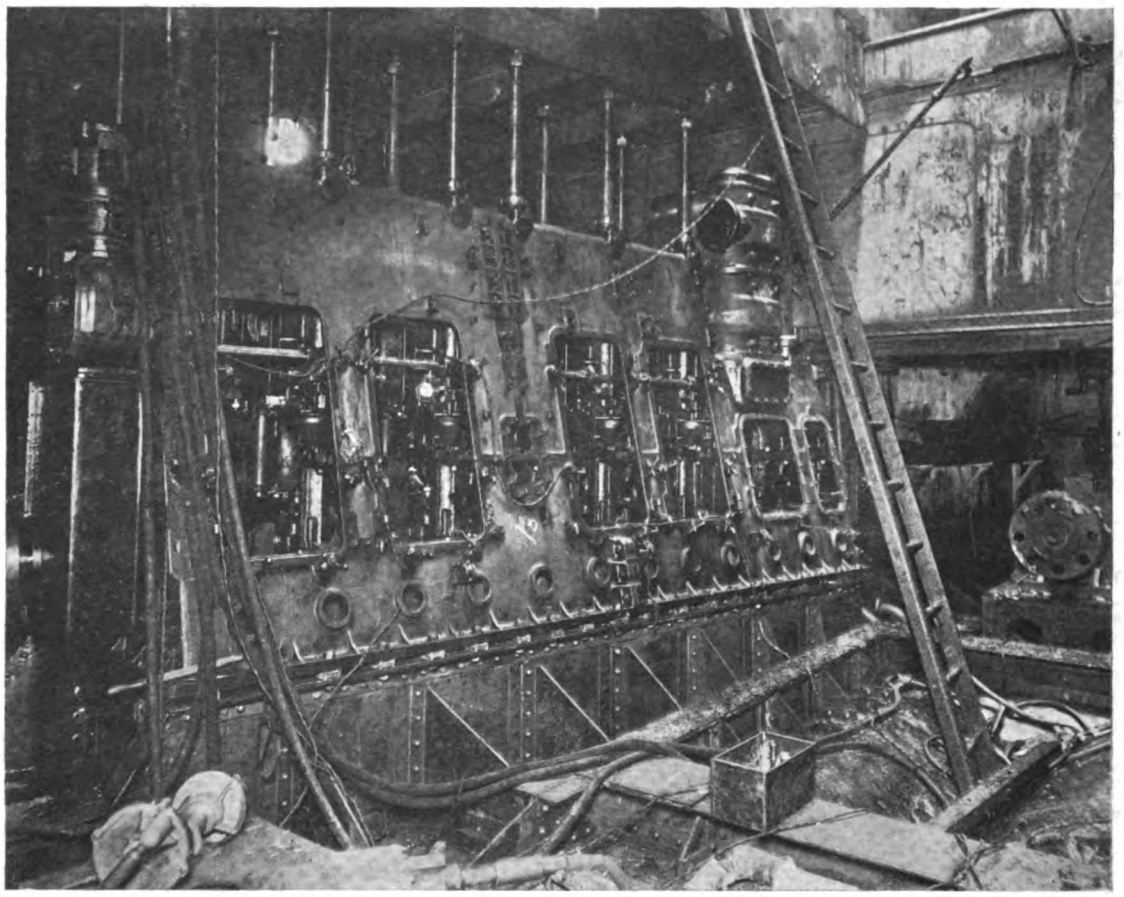
DIESEL-ELECTRIC DRIVE

For Economical Conversion of Steamers



One of the two Ansaldo-San Giorgio two-cycle type, four-cylinder Diesel engines now being installed in the freighter "FORDONIAN" in conjunction with General Electric drive. Photograph taken in engine-room during installation. This ship is being converted into a Diesel-Electric vessel at the plant of the Tebo Yacht Basin Co., Brooklyn, N. Y.

ELECTRIC DRIVE INSTALLATIONS
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